

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 680.—Vol. XVIII.

LONDON, SATURDAY, SEPTEMBER 2, 1848.

[PRICE 6D.]

**WEST WHEEL MARIA MINE, near TAVISTOCK.**—TO BE SOLD, BY AUCTION, BY FRANCIS A. DAVIS, on Tuesday, the 8th Sept., 1848, at Eleven o'clock in the forenoon, at WEST WHEEL MARIA MINE, in the parish of LAMERTON, near TAVISTOCK, the whole of the valuable

**MATERIALS OF THE SAID MINE, comprising**

31 9-feet 9-inch pumps	73 Fathoms 2½-inch iron horizontal rods
2 6-feet 9-inch ditto	A quantity of pulleys and stands
34 9-feet 12-inch ditto	2 Pairs shaft tackle, with pulleys, com-
4 6-feet 12-inch ditto	50 Fathoms 4-inch whim chain
8 6-feet 7-inch ditto	Sundry other chains
2 10-feet 8-inch working barrels	2 Pairs of excellent shears, with sheaves
1 10-feet 6-inch ditto	and brasses, complete
2 9-feet 9-inch windboxes	2 Superior capstans
1 9-feet 11-inch ditto	About 20 fathoms 2-inch bucket-rods
1 6-feet 11-inch ditto	30 Fathoms 1½-inch ditto
1 9-feet 7-inch ditto	2 Very good horse whims
2 6-feet 9-inch doorpieces and doors	A quantity of strapping-plates, bolts,
1 6-feet 11-inch ditto	bars, yokes, and glands, &c.
1 4-feet 7-inch ditto	Ditto, pump rings
1 3-feet 12-inch H-piece	120 Fathoms ladders
1 3-feet 8-inch ditto	2 Horse-whim kibbles
1 11-inch plunger pole, with case, stuff-	4 Winze ditto
ing-box and gland	About 2 tons new iron
1 8-inch ditto ditto	A quantity of useful and scrap iron
60 Fathoms 11-inch main rods	90 Fathoms of dividing and casing timber
120 Fathoms 11-inch capstan rope, nearly	120 Feet of Norway balk (new)
new (by Chubb)	107 Feet of American (ditto)
40 Fathoms 9-inch ditto	Lot of useful timber
150 Fathoms whim rope	40-inch smiths' bellows (nearly new)
Main, balance, and angle-bobs	Smiths' anvils, horse, and vice,

Set of screw plates and taps, from 2-inch to 2½-inch (new), large beam scales and weights, pair screw bevels, screw stock, several pairs buckets, with valves, &c., a large quantity of miners' tools, 2 very superior double and single blocks, with brass sheaves, pair triangles, a great many fathoms of wood air-pipes, grindstone and frame, carpenter's bench, smiths and miners' chests, 6 miners' shovels (new), 2 cwts. sump gasket, 1 hide bend of leather, a quantity of nails, of different sizes, small scales and weights, office desk, 3 counting-house tables, register grate, with a variety of useful articles for mining and other purposes. Also, a very superior powerful STEAM PUMPING-ENGINE, 40-inch single cylinder, 9-foot stroke, 7½-horse power, with a 10-ton boiler, made by Messrs. Fox and Co., from the drawings of Mr. William West—quite new in every particular only two years since.

The auctioneer feels confident, that, in recommending the above materials to the notice of mine agents and others, he can do so with perfect safety, inasmuch as of his own knowledge, he can state that nearly the whole has been purchased new—regardless of cost, within the last two years. He also respectfully solicits an early attendance, as he proposes, if practicable, to dispose of the whole in one day.

The mine is situated about four miles from Tavistock, and adjoins the celebrated Devon Great Consols.

County Free and Provident Life Office, West-street, Tavistock, August 16, 1848.

**TO CAPITALISTS—PROFITABLE INVESTMENT.**

**MESSERS. BELL & WATSON** are instructed to SELL, BY AUCTION, without reserve, at the GEORGE INN, PILGRIM-STREET, NEWCASTLE-UPON-TYNE, on Tuesday, the 26th Sept. next, at One for Two o'clock in the afternoon (by order of the mortgagees, under an absolute power of sale, unless previously disposed of by private contract, of which due notice will be given), the WHOLE of those rich and extensive LEAD MINES, or VEINS OF LEAD ORE, lying or being within or under a certain portion of ground, part of the manor of Alston Moor, commonly called

**THE GALLIGILL SYKE LEAD MINES.**

held and subject to the terms of a lease under the Commissioners of Greenwich Hospital, comprising the MINES under and above the ground, FIXTURES and MATERIALS, CRUSHING-MILL, DRESSING or WASHING MACHINE, TUBS, WAGGONS, WORKS, SMOKE, RAILWAY, and every other requisite for the produce and sale of lead ore.

These mines have been opened out during the last six years, and but partially worked, and the late proprietors have incurred very considerable expense in laying out the mines, and preparing them for the development of their valuable and exhaustless resources.

The supply of ore has, during the above period, been annually increasing; and, in the ordinary and profitable progress of working, will be for years to come capable of increased extension—during the last year producing a quantity only exceeded by three out of the numerous mines in this extensive and well-known mining district.

The quality of the ore of these mines ranks with the best, producing an unusually large portion of silver, and the mine has been, and is now, in profitable operation, and promising increased and large returns, by its further and more vigorous working.

Messrs. BELL & WATSON are also authorised to TREAT for the SALE of the said MINES by PRIVATE CONTRACT, and will receive any proposal or communication, with that view, until the 19th of Sept. next, not beyond that time, so as, in case of sale, to give sufficient notice to the public.

Messrs. BELL & WATSON are further instructed to SELL, at the same time and place, those extensive MINES, known by the name of the GALLIGILL BESS MINES, contiguous to the above, and subject to the same terms of lease. These mines have not been worked, and, from their extent, richness, and convenience of situation, afford a certain prospect of being profitably worked.

Further particulars may be had, of all communications are requested to be addressed to Messrs. Bell and Watson, auctioneers, Bank-buildings, Mosley-street, Newcastle-upon-Tyne.

The mines may be viewed on application to Mr. John Latham, New Shield, near Alston.—Newcastle-upon-Tyne, August 24, 1848.

**TO BE SOLD, OR LET, a valuable COAL MINE, in the township of GREAT HARWOOD, in the county of Lancashire.** The mine has been recently proved, and found to be 3 feet 2 inches in thickness, and of excellent quality; it is commonly called, or known, by the name of the UPPER MOUNTAIN MINE, and extends over about 1000 statute acres, which will be divided into suitable lots. The property is situated between the towns of Blackburn and Clitheroe, and is intersected by a branch of the East Lancashire Railway.

A section of the workings may be seen, by applying to Mr. Boote, Rufford-hall, Ormskirk; or to Mr. White, coal viewer, Charnock Richard, Chorley—to either of whom proposals may be sent.

**TO MINING CAPITALISTS.**—The attention of parties desirous of INVESTING a very MODERATE AMOUNT of CAPITAL in the working of MINES, situated in the largest and most valuable mining district of Cornwall (GWENNAP), is earnestly directed to WHEAL ANDREW AND NANGLE'S, the SALE of which, with the valuable STOCK of MACHINERY and MATERIALS thereto belonging, was determined on at a meeting of the shareholders last Monday.

It is well known that the mines in question are the joint property of the United Mines, and some of those of the Consolidated Mines, passing through them, and that they adjoin the last-named celebrated concern.

On one of these lodes the works have been carried to the depth of 110 fathoms below the surface; in doing which, considerable quantities of copper and tin ores, and other minerals, have been raised; but the amount of success not being equal to the expectations of some of the shareholders, many of them are indisposed to invest more capital in the undertaking—hence the necessity of placing the mines in the hands of parties who should be prepared to make a further outlay on them.

The mines are supplied with a powerful steam-engine, capable of draining them to a much greater depth, together with pitwork, varying in diameter from 12 to 15 inches, and every other requisite for working effectually.

It has been estimated that the mines, with all the property on them, may be purchased, and the works carried 40 fathoms deeper, besides continuing some other trials, for about £5000, or, at farthest, £6000—even if no considerable discovery of ore should be made in the mean time. It may be confidently asserted, that an opportunity of making so important a trial as this—in the best locality in the county, with so small an outlay—is not likely to present itself again.

Further particulars may be obtained on application to Capt. Francis, Whitehall, Truro. [This advertisement will appear but once.]

Dated Wheal Andrew and Nangle's, August 30, 1848.

**TO CAPITALISTS AND OTHERS WANTING TO INVEST** CAPITAL, where a very high per centage can be obtained with a small outlay; in mineral speculations of undoubted wealth, without personal risk.—Full particulars and prospectuses can be obtained on application to George Gendell, Esq., stock and share broker, 1, Royal Exchange-buildings; Mining Offices, 20, Great Marlborough-street, Regent-street, London; Mr. Joseph Clarke, jun., stock and share broker, Southampton; Mr. John Downham, stock and share broker, Bury and Manchester; or Messrs. J. Redmond and Co., 22, Exchange-street East, Liverpool. JOHN GATES, Secy.

**FOURDRINIER'S PATENT SAFETY APPARATUS, for PREVENTING ACCIDENTS IN MINES AND OTHER PLACES, WHEN THE ROPE OR CHAIN BREAKS.**

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents—viz.:

1. From the men, or the load, being precipitated to the bottom of the shaft when the rope or chain breaks: in this case the apparatus is self-acting.

2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is self-acting.

3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally certain.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at WORK near BURSLEM, in the STAFFORDSHIRE POTTERIES.

To inspect the apparatus, or to obtain any further information, application may be made to Mr. Edward N. Fourdrinier (the patentee), Cheddleton, near Leek, Staffordshire; or to Mr. Joseph Fourdrinier, 9, College-place, Camden Town, London—who are prepared to GRANT LICENSES for the USE of the PATENT.

**EMERSON'S PATENT LIQUID CEMENT.**—This VALUABLE and ECONOMIC PAINT is READY FOR USE—it is simple in its application, and only one-sixth the cost of oil paint; for beauty, it is pre-eminent over all other materials used on the fronts of houses—giving the exact appearance of FINE CUR EROSE. It can be used at once on fresh Roman cement, or other plastering, and is particularly calculated for country houses, villas, or gate entrances that have become soiled or dingy, which can be at once beautified in any weather, at a mere triding cost.

\* Sold in casks of 1 and 2 cwts., at 8s. and 15s. each.

**PATENT MINERAL PAINT.** A brilliant black paint, invaluable as a coating for SHIPS' SIDES and BOTTOMS; also for all kinds of WOOD or METAL WORK, or the asphaltic roofing felts, leaky roofs, spouts, and gutters, doors, sheds, railings, and all kinds of out-door work; and, being perfectly waterproof, will preserve their surfaces from atmospheric influence and decay; requires no preparation, and will dry in a few hours.—Price 2s. per gallon.

**PATENT ASPHALTE ROOFING FELT.** of the best quality, at 1d. per square foot, in pieces, 20 yards long and 32 inches wide.—GEORGE LEAR & CO., Sole Agents for the Patentees, 5, Church-court, Clement's-lane, Lombard-street.

**PATENT ALKALI COMPANY'S IRON PAINT.**—This PAINT is the PRODUCT of a PATENT PROCESS, and possesses PECULIAR and VALUABLE PROPERTIES, not otherwise attainable.

Its colour (as at present produced) is a rich purple-brown. It is perfectly free from the deleterious qualities of white lead.

It surpasses all other paints ever yet discovered, in point of durability and economy.

Two coats of this paint are more than equal to three of any other description.

From its chemical composition, it is pre-eminently adapted for covering iron; also wood, and stucco, or brick buildings. The process by which the base of this paint is produced, makes it impossible that any change should take place in its composition from atmospheric influence. Its identity with iron secures it from galvanic action, so fatal to the durability of lead and other paints on iron work.

It has been exposed on shipping to the action of sea-water, and of the sulphuretted hydrogen, so prevalent in sea-ports and tidal harbours, for more than three years, without change.

Its cheapness and strength render it peculiarly suitable for iron bridges, roofs, and railings, farm buildings, and shipping. It will also cover crooked timber.

Price, by the ton, £25, delivered in London, exclusive of packages.

Agents will be appointed for the principal towns in the United Kingdom; in the mean time, orders may be addressed to the offices of the company, No. 20, Fenchurch-street, London. JOHN A. WEST, Secretary.

**PATENT FLEXIBLE INDIA-RUBBER PIPES AND TUBING.** for Railway Companies, Brewers, Distillers, Fire-Engines, Gas Companies, Gardening and Agricultural purposes, &c.

**THE PATENT VULCANISED INDIA-RUBBER HOSE-PIPES** are made to stand hot liquor and acids, without injury—do not become hard or stiff in any temperature (but are always perfectly flexible); and as they require no APPLICATION of oil or dressing, are particularly well adapted for Fire Engines, Pumps, Gas, Beer-Begins, Gardens, and all purposes where a perfectly Flexible Pipe is required.

Made all sizes, from 1-inch bore upwards, and of any length to order.

Vulcanised India Rubber Garden Hose, fitted with brass-taps, Copper branch and Rose's complete, ready to be attached to pumps, water-butts, or cisterns.

Sole manufacturer, GEORGE W. GOSWELL, Goswell-road, London.

N.B.—Vulcanised India-Rubber Washers, of all sizes, for joints of hot-water and steam-pipes, and Vulcanised Sheet Rubber, any thickness, for all kinds of joints, and other purposes.

**RAILWAY AND OTHER IMPORTANT RECORDS.** EFFECTUALLY PROTECTED FROM DAMP AND VERMIN.

Extract from the Appendix to the Second Report of the Commissioners on the Fine Arts.

"In 1839, I superintended the construction of a house, of three stories, on the Lac d'Enghein. The foundation of the building is constantly in water, about 19½ inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of

**SEYSSSEL ASPHALTE.**

less than half an inch thick, over which coarse sand was spread. Since the above date, no trace of damp has shown itself round the walls of the lower story, which are, for the most part, painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 2½ inches above the external surface of the soil, and only 19½ at the utmost, above that of the sheet of water. The layer of asphalt, having been broken and removed, for the purpose of inserting the sills of two doors, spots, indicating the presence of damp, have been since remarked at the base of the door-posts.

The DIRECTORS of the SEYSSSEL ASPHALTE COMPANY have much pleasure in recommending to the notice of ENGINEERS and ARCHITECTS the application of the ASPHALTE of SEYSSSEL, as the only effectual mode of preventing damp in basement floors, and water from percolating through the ARCHES of a VIADUCT.

The arrangements of this company enable works of any extent to be executed with the greatest promptitude.

J. FARRELL, Secretary.

SEYSSSEL ASPHALTE DEPOT, STANGATE, LONDON.

Est. 1838.

\* This method has been adopted at the New Houses of Parliament.

**PATENT GALVANISED IRON AND WIRE ROPE WORKS** MILLWALL, POPLAR.

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £20, under the ordinary process. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

**PATENT IMPROVEMENTS IN CHRONOMETERS.** WATCHES AND CLOCKS.—E. J. DENT, 42, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6s. each; in gold cases, from £5 to £10 extra. Gold hollow watches, with gold dials, from 6s. to 12s. each.

DENT'S PATENT DIPLIDOSCOPES, or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use, 1s. each, but to customers gratis.

**LONDON INDISPUTABLE LIFE POLICY COMPANY.** Incorporated by Act of Parliament.

Upon the principle of Mutual Life Assurance, the whole profits being divisible among

No. 31, LOMBARD-STREET, LONDON.

TRUSTEES.

John Campbell Renton, Esq., M.P. Richard Spooner, Esq., M.P.

John Malins, Esq. James Fuller Madox, Esq.

William Wilberforce, Esq.

BANKERS—Messrs. Spooner, Attwood, and Co.

The policies are indefeasible and indisputable, which renders them more valuable and certain as family provisions, and elevates them to the rank of negotiable instruments of security for pecuniary transactions. All questions as to age, health, habits, employment, health of relatives, and other matters, deserving of inquiry prior to the contract being granted, are held as finally settled when the assured receives his policy.

To remove all doubt on this important subject, at present and for all future time, the following clause has been inserted in the Deed of Incorporation of the company:—Clause 84, "That every policy issued by the company shall be indefeasible and indisputable, and the fact of issuing the same shall be conclusive evidence of the validity of the policy, and it shall not be lawful for the company to delay payment of the money assured thereby on the ground of any error, mistake, or omission, however important, made by, or on the part of, the person or persons effecting such assurance, and that, on the contrary, the amount so assured shall be paid at the time stipulated by the policy, as if no such error, mistake, or omission, had been made or discovered."

The first investigation and division of profits will take place in June, 1853, and thereafter annually; and the bonuses will be applied to the reduction of future premiums.

The rates of premium combine moderation with safety.

Application for agencies, in places where none have been appointed, may be made to ALEXANDER ROBERTSON, Manager.

**PROFESSIONAL LIFE ASSURANCE COMPANY.** Connecting the Clerical, Legal, Military, Naval, and Medical professions, and holding out advantages to the public not hitherto offered by any similar institution.

Incorporated.—Capital £250,000.

Established upon the mixed, mutual, and proprietary principle.

Rates essentially moderate.—Every description of policy granted.—Immediate survivorship, and deferred annuities, and endowments to widows, children, and others.

Every policy (except only in cases of personation) indisputable.—The assured permitted to go to and reside in Canada, New South Wales, New Brunswick, Australia, Madeira, Cape of Good Hope, and Prince Edward's Island, without additional premium.—Medical men remunerated for their reports.—Loans granted on real or personal security.—One-tenth of the entire profits appropriated for the relief of the assured while living, and of his widow and orphans.—Annuities granted in the event of blindness, insanity, paralysis, accidents, and any other bodily or mental affliction, disabling the parties. Persons of every class and age admitted to all the advantages of the corporation.—Rates for assuring £100 at the age of 25, 35, 45, and 55, respectively—namely, £1 14s. 6d., £2 5s. 6d., £3 4s. 3d., and £4 18s. 6d.

Prospectuses, with full details, may be had at the office.—Applications requested from parties desirous of becoming agents. EDWARD BAYLIS, Actuary and Secretary.

Offices, 76, Chancery-lane, London.

**TO BE SOLD (a BARGAIN), a PAIR of MARINE BEAM** ENGINES, by Fawcett and Co., of Liverpool, of 130-horse power; they have metallic pistons, and are in excellent condition, having very lately been fitted with new air-pumps, &c.—they are complete, with shafts and paddle-wheels. Also, a PAIR of 350-horse power DITTO, nearly new, fitted to Smith's Screw Propeller.

For particulars apply to Messrs. Bailey & Kilday, 3, George-yard, Lombard-st., London.

**FOR SALE (at the works of Sims, Trevena, and Co., Redruth),** a NEW 20-horse power ROTATORY STEAM-ENGINE—on Sims's patent combined principle—with or without a boiler. This engine is well adapted for a flour-mill, or for other general manufacturing purposes, and will be sold on very reasonable terms.

**FOR SALE, BY PRIVATE CONTRACT—A single-acting** PUMPING-ENGINE—cylinder 30-inch diameter, 9-foot stroke, equal beam, with 7-ton boiler, cylinders, spring beam, and first set of rod-shafts attached, being the engine of Wheal St. Cleer.—For particulars, apply to Capt. Osborne, Liskeard; Mr. West, ena; near St. Blaszy; or Mr. Rendle, the purser, 13, Octagon, Plymouth.

**STEAM-ENGINES.**—From 8 to 20-horse power ENGINES ALWAYS IN STOCK.

Apply to Mr. CAPPER, Engine-Maker and Founder, BIRMINGHAM.

Price—£12 to £16; with boiler, £23 per horse.

**UNDER BRITISH AND FOREIGN LETTERS PATENT.**—Valuable INVESTMENT, by partnership or otherwise.—ABSORBENT and SOFT STONE INDURATED, rendered impervious to wet, frost, vermin, &c., and polished as high as marble, for all purposes.—CHALK, SAND, PLASTER, WOOD, CAR-TON-ROOF SHEETING, &c., treated equally as successful.

Established works, 4, St. Mark's-lane, near Can, and at Tushbridge Wells, where orders are executed much cheaper than other stone, &c.—Hatchell and Co.'s offices, East Temple Chambers, 2, Whitefriars-street, Fleet-street, London. N.B.—LICENSEES GRANTED.

**KESWICK MINING COMPANY.—THIRTY SHARES** in this MINE FOR SALE—£3 10s. paid—at 5s. per share discount.—Apply to Mr. Herron, mining agent, 3, Adam's-court, Broad-street.

**MINING OFFICES—ESTABLISHED FIVE YEARS.**—THOMAS P. THOMAS begs to inform his friends and the public, that he has REMOVED from No. 18, Threadneedle-street, to No. 3, GEORGE-YARD, LOMBARD-STREET, LONDON (late Messrs. Phillips and Tiplady's). N.B.—Dealer in English and Foreign Funds, Mining, Railway, Gas, and other shares.

**MR. R. TREDINNICK, THREE KING'S COURT,** LOMBARD-STREET, LONDON.

Continues to DEAL in every description of MINING, RAILWAY, BANKING, INSURANCE, CANAL, and OTHER SHARES.—Statistical information afforded gratuitously, upon personal application.—MONEY ADVANCED upon the above securities.

**WILLIAM W. TAYLOR & CO., MINERAL SURVEYORS,** MINING SHAREBROKERS, &c., No. 2, ROYAL EXCHANGE-BUILDINGS, LONDON.

**JAMES LANE, MINING SHARE DEALER,** 75, OLD BROAD-STREET, LONDON.

**WILSON & FRASER, 2, WELLINGTON-BUILDINGS,** LIVERPOOL, and 13, EXCHANGE-PLACE, GLASGOW, have always ON SALE, IRON, BAR-IRON, RAILWAY CHAIRS, and RAILWAY BARS.

**MONEY.—MESSRS. KILLICK & CO. (late WINSTANLEY, KILLICK, & CO.), SHAREBROKERS,** inform their friends and the public, that they make IMMEDIATE ADVANCES, to any amount, on the deposit of English and Foreign Railway Shares, Scrip, and Debentures, upon exceedingly advantageous terms; they also BUY and SELL every description of STOCK and MINING SHARES, at much less commission than usually charged.—6, Bank Chambers, opposite Bank of England.

**EUROPEAN GAS COMPANY, 39, FINSBURY-CIRCUS, London,** Sept. 4, 1848.—The directors hereby give Notice, that a CALL of FIVE POUNDS per share on the shares allotted the 17th June, 1844, is required to be PAID on or before Monday, the 6th day of November next, at the banking-house of Messrs. Glyn, Harcourt, and Co., Lombard-street, London, pursuant to the provisions of the Deed of Settlement.

By order of the board, J. B. GREAVES, Secretary.

**CORNWALL NEW MINING COMPANY** Capital £100,000, divided into 20,000 shares, of £5 each.

Deposit, £1 per share.

Three further calls, of 10s. per share, at 6, 12, and 18 months.

Incorporated in pursuance of the Statute of 7 and 8 Victoria, cap. 110.

BANKERS—London and County Bank, 31, Lombard-street.

THE CORNWALL NEW MINING COMPANY is ESTABLISHED to WORK a series of TIN and COPPER MINES, chiefly in the district of ST. IVE'S, which has hitherto afforded a larger profit on its return of ore than any other part of the county.

In pursuance of this plan, five have been already selected—viz.: Georgina Tin Mines, Treveltha Tin and Copper Mine, Bray Tin and Copper Mine, Trevanno Tin and Copper Mine, and Wheal Squire Tin and Copper Mine—with whose owners the directors have succeeded in making such advantageous arrangements, as to enable them to work one or more with even a small portion of the proposed capital.

The directors beg to announce, that they are NOW ALLOTING the SHARES in the above company; and, from the number already disposed of, they request parties desiring to take shares to make early application. Those to whom allotments have been made, are desired to pay their deposits into the bankers of the company, as above.

The Deed of Settlement having been executed by the required number of shareholders to incorporate the company, parties who now take shares will not be required to sign it, or enter into any personal liability for calls or otherwise, although reserving their full rights as shareholders.

Office, 17, Essex-street, Strand. GEO. LOCKWOOD, Secretary.

**WICKLOW COPPER MINE COMPANY.—The DIVI-** DEND of TEN PER CENT. declared for the half-year ending 1st of March, 1848, will be PAYABLE on and after the 1st day of Sept., at the Leinster Chambers, Dame-street; and, in London, at the banking-house of Messrs. Puget and Co., Dublin, August 26.

**NATIONAL BRAZILIAN MINING ASSOCIATION.**—At a Public Meeting of the shareholders of this association, held at the London Tavern, on the 29th of August, 1848.

["UNMARKED SHARES."] It was resolved.—That the directors be authorised to receive, at the rate of £4 per share, by instalments of £1, on or before the 15th of September next—£1 on or before the 15th of October next, and the remaining £2 on or before the 31st of December next; and in failure of payment, the shares to be forfeited, as they may be advised; and in the case of such failure, this resolution to be without prejudice to any forfeiture which may have already taken place.

THOS. CORNEY, Chairman of the Meeting.

**CALL OF 10th FEBRUARY, 1847.** The directors hereby give Notice, that, in accordance with the decision of the said meeting, the unpaid instalments of the call of £4 per share, made on the 10th February, 1847, will also be received, and that the same must be paid on or before the 30th Sept. next. The instalments and calls above-mentioned are to be paid into the Commercial Bank of London, Lothbury, where receipts will be given for the amount; and on the shares, with the banker's receipts, being left at this office, an acknowledgment will be given for the same. After three clear days the unmarked shares will be returned, with the instalments received on them, and for the others new shares will be issued in exchange.

By order, JOHN KEMPSTON, Secretary.

26, Throgmorton-street, August 30, 1848.

**WHEAL WALTER MINING COMPANY.—At a Meeting** of the shareholders, or adventurers, of the Wheal Walter Mining Company, held at 4, King-street, Chancery-lane, London, on Tuesday, the 29th day of August, 1848, in pursuance of notice, for the purpose of receiving a statement of accounts from the purser (Mr. Walter Weekes)—to consider the best mode of finally winding up the affairs of the mine, and on other business.

Resolved.—That Henry Smith, Esq., be chairman.

Resolved.—That the balance-sheet, forwarded to this meeting by the purser, Mr. Walter Weekes (through his attorney, Mr. Bridgman, on the 28th inst.), appears to this meeting to be totally erroneous, which, on reference to the accounts forwarded by the purser at different times heretofore will show.

Resolved.—That sums due to the creditors, whose names are mentioned in the balance-sheet above referred to (except Messrs. Bayley and Fox), having been paid by the committee to Mr. Walter Weekes some considerable time since—that the said creditors be written to, with a copy of these resolutions, and requesting them to apply to Mr. Walter Weekes for the amount.

Resolved.—That, by the sale of materials by the purser, amounting to .. £163 17 8 Also calls received by him, amounting to .. .. 88 0 0

Making a total of .. .. £251 17 8 being more than sufficient to discharge the account of Messrs. Bayley and Fox, that they be requested to proceed against Mr. Walter Weekes for the recovery of their debt.

**SPEED AND POWER OF THE LOCOMOTIVE—EXTRAORDINARY RUN WITH THE GREAT WESTERN EXPRESS TRAIN—SEVENTY MILES PER HOUR FOR FORTY-THREE MILES.**—The most extraordinary journey that has yet been made by the express trains upon the Great Western Railway was performed on Saturday, with the *Courier* locomotive, from Didcot to Paddington, with the 19 o'clock express train from Exeter, consisting of six carriages, weighing 60 tons. The *Courier* is one of the eight-wheel class of engines, with 8 feet driving wheels, 18-inch cylinders, and 24-inch stroke; and the only difference between her and the others of the class, the extraordinary speeds of which we have frequently recorded, is that her tubes are 3 inches shorter, and her fire-box larger by, we believe, 8 square feet. The engine was driven by John Heppell, who had charge of the celebrated *Leion*, 7 feet driving wheel locomotive, during the gauge experiments. He is one of the oldest, steadiest, and most intelligent drivers on the line, and managed his engine on Saturday with great judgment. He was, by the permission of Mr. Gooch, the locomotive superintendent of the Great Western Railway, accompanied by Jonas Brown, one of the "crack" drivers in the service of the London and North-Western, who rode on the foot-plate of the engine, and took the rate of working. From our own notes of the working of the *Courier* for the 53 miles from Didcot to Paddington, the 53 miles were performed—that is, from a state of rest to the time the engine entered the station at Paddington—in 49 minutes 13 seconds, or at an average speed, including the time lost in getting up speed when departing from Didcot, as well as the time lost in reducing speed when arriving at Paddington, of sixty-seven miles per hour. The 47th mile-post was passed at 3.46.40, and the fourth mile-post at 4.23.24, so that forty-three miles were performed in thirty-six minutes and forty-four seconds, or at an average speed of upwards of seventy miles per hour. The whole of the journey from Swindon (77 miles) to London, was scarcely less extraordinary than that from Didcot to London. The train left Swindon at 3.9.1, stopped at Didcot 5 minutes 35 seconds, and reached Paddington at 4.28.13. The 77 miles were therefore gone over in 78 minutes 29 seconds, including the 5 minutes 35 seconds stoppage at Didcot. The thirteen miles from the twenty-ninth to the sixteenth mile-post were performed at the rate of upwards of twenty-two miles per hour.—*Morning Herald*.

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## COPPER AND LEAD DUTIES BILL.

In the House of Commons, on Monday evening, the CHANCELLOR of the EXCHEQUER having moved that this bill be read a second time—

**LORD GEORGE BENTINCK** said, Sir, in the absence of the hon. Member for Bodmin (Mr. Wyld), I must now move that this bill be read a second time this day six months. Sir, I believe that this bill has now been postponed two and thirty times. (Hear, and laughter.) The resolution upon which the bill is founded was introduced at something like this hour of the night (10 o'clock), and I must suppose, by the manner in which the Government have postponed the second reading, that they have no very great confidence in the merits of the bill—(hear, hear)—but rather rely upon that majority which the Government can always secure at this period of the session. Sir, I object to this bill on many grounds. I object to it on the ground that it is most indecorous and unfitting that, when the Government is in that state of almost insolvency that they are obliged, in an irregular way, to borrow 2,000,000, to make up their deficiency, that they should, at the same time, be squandering away a part of its solid revenue, levied upon the industry of foreigners. (Hear.) I object to this bill, on the ground that it is unnecessarily diminishing a revenue that is altogether insufficient for the purposes of the expenditure of the nation. I object to it on this ground, that it is another step taken by the Government towards raising the taxes of this country in a direct, rather than in an indirect, manner. I object to it on the ground that, in my opinion, the customs duties are those which press by far the lightest upon the people of this country—(Hear, hear)—that the customs duties are taxes that are levied in great part upon the industry of foreigners, that foreigners may share with us the burthen of those taxes. Sir, I object to this bill, on the ground that it is a removal of the just protection which the miners of Cornwall are entitled to at the hands of the Government of England. (Hear, hear.) Sir, let us consider what the nature of this tax is. It is a tax which, *ad valorem*, amounts to no more than six per cent. on the produce; it is a tax upon the *ad valorem* principle, because the duty on the copper is charged in proportion to the quantity of pure copper contained in that ore. Now, Sir, if there is a tax which bears more lightly than another upon the trade and industry of this country, it must be one that does not exceed six per cent., *ad valorem*, upon the article imported. I am glad to see the right hon. gentleman, the Member for Portsmouth (Sir F. Baring) in his place, and I hope to-day he will vindicate the principle of the Whig Government when he was Chancellor of the Exchequer—which was the principle of levying taxes from the customs duties. I hope he will again to-night vindicate that principle which he laid down in the early part of this session, when he told us there must be a limit in attempting to raise taxes in a direct shape—(Hear, hear)—that if we go upon our customs duties—if we lavishly and extravagantly throw away our customs duties—the only result will be, that we must have recourse to an income tax, the only security in the day of danger and foreign war; and that we must take care that resource did not some day slip from under us, and leave us unable to meet the general expenditure, and unable to pay the national debt. Sir, this tax, small as it is, is one that concerns the subsistence of more than 22,000 persons, who represent with their families nearly 100,000 souls. I think we should not, on that account, lightly throw away a tax, which, while it feeds the revenue, protects the means of subsistence of so large a portion of our countrymen. (Hear.) Sir, I can state with great truth that the miners of Cornwall never were in a lower condition than they are in at the present time. (Loud cries of "hear, hear.") I can state, with equal truth, that there never was a moment when there was less claim on the part of the smelters of Swansea and elsewhere, to demand this reduction of duty. I can assure this House, that while on the one hand the price of copper ore has fallen to a state lower than was ever known before, the price of fine copper produced from that ore has not fallen in the like proportion. (Hear, hear.) On the contrary, I shall be able to show, that the price of copper has risen, while that of ore has fallen. (Hear.) I shall be able to show to the House, that there is at this time a difference between the price of copper and of copper ore of 22 per cent. The smelters, who ask for this boon, and who are the objects of the noble lord's protection, are a powerful body, and strongly represented in this House. But there never was a more complete monopoly than they constitute; and it is to add further to the unjust gain of this monopoly that her Majesty's Ministers now propose to reduce this small duty of 6 per cent., *ad valorem*, upon the produce of Cuba (where copper is produced by slaves), and also upon the produce of Chili. The hon. Member for Westmoreland, who is largely interested in these mines, assured me that there never was a greater monopoly, or a body less entitled to receive this boon, than that of the smelters. He said to me, "I am interested in the matter, and I shall not vote; but I can tell you, that the Government might as well give us this 40,000, and let us divide it amongst us, as repeal the duty in the mode in which they propose to repeal it." (Hear, hear.) That gentleman was Mr. Alderman Thompson, the Member for Westmoreland. (Hear, hear.) He said, "It is for my interest to see this measure carried; but I feel that it is so contrary to principle, and so contrary to the interests of my country, that I shall not vote for it, and I wish to give you that information." (Hear, hear.) But, Sir, it is not only Cornwall that is concerned in this matter; our colonies are likewise interested in the protection of the duty upon copper, the produce of foreign countries. Now, Sir, I do not object to admit the produce of the colonies free of duty—(Hear, hear)—and if I shall not succeed in throwing out the bill on this proposal that it be read a second time, I shall be prepared to support an amendment in committee which shall leave the copper of the colonies untaxed, and shall impose a tax only upon copper ore the produce of foreign countries. Sir, it was about some four weeks ago that the Under Secretary for the colonies (Mr. Hawes), in defence of the Government and himself against the attack of the hon. Member for Southwark (Sir W. Molesworth), threw himself upon the condition of the colony of South Australia (a pet colony, he called it). He said on that occasion, that our colonial policy, as a whole, was the most successful and the most beneficial that the world had ever witnessed. Amongst the proofs he gave of the great success of our colonial policy—not the new colonial policy—(Hear, hear)—he quoted the instance of South Australia, and he told you that no colony in the history of any colonial empire had ever shown such rapid strides in improvement and wealth as had the colony of South Australia. He told you, that in 1840 the population was but 14,600; and that population, in 1845, had increased to 22,390; and, in 1846, to 26,893. The hon. gentleman, the Under Secretary for the Colonies, said the exports from Australia were, in

1840 ..... £50,640  
1845 ..... 131,000  
1846 ..... 312,638

He said the copper ore exported from Australia was, in

1844 ..... £ 4,009  
1845 ..... 17,175  
1846 (half a year) ..... 54,168

Thus the exports of copper ore, in 1846, from Australia, calculating according to the first six months, were equal to 108,366, being one-third of the whole exports of that flourishing colony. The hon. gentleman told us then that these colonies, generally speaking, were happy and content; but you are now about to change that position into one of discontent and wretchedness. From the lords' report upon colonisation, we learn that the interests of the copper miners of Cornwall are not limited to Cornwall, inasmuch as those mines in Australia are in the main worked by miners from Cornwall, who emigrated there. The Colonial Commissioners have been sending out miners to Australia: 3000 males and females went there in 1847, and of those 800 were adults, and connected with mining operations. And now it seems, after sending out those poor people, under the auspices of the Colonisation Commissioners, after transporting those poor miners to a distant country, you are going to ruin their trade, and take away their means of earning a honest livelihood. (Hear, hear.) We heard the other night a most eloquent appeal from the hon. Member for Manchester on behalf of Ireland, and though I could not agree with him in some of the modes of relief which he proposed, I could at least coincide with him thus much—that there is no society in Europe from which an English gentleman need not reason to shrink with a feeling of humiliation whenever the condition of Ireland is spoken of. (Hear, hear.) I agree with him that the condition in which that country is placed has a pernicious influence on the state of Lancashire. The English labourer is borne down by the excessive competition of the Irish; but, in Australia there is, or was, ample means of employing those Irish labourers in a most lucrative manner. Col. Mitchell said, that he found the Irish labourers the best and the most hardworking in New South Wales. But all this profitable employment we are now about to surrender in favour of Cuba or Brazil. The President of the Board of Trade informed us, on a former occasion, that there was ample protection to the miners of Cornwall in the cost of freight between Chili on the one side, and Cuba and England on the other. Let us see how this stands, and how that freight will protect Australia. The distance from Cuba is about 4000 miles; from Chili, 9000 miles; whilst the distance for which freight must be paid from Australia is 16,000 miles. (Hear, hear.) Therefore, if the argument of the President of the Board of Trade as to freight is good for anything, it is good against himself. (Hear, hear.) There is another disadvantage which affects the miner in Australia, and which does not in anything like the same degree affect the Chilean or the Cuban miner—namely, the distance of the mines from the nearest port of embarkation. In Australia it was no less than 97 miles. Having stated thus much in favour of our Australian colonies, I will next call the attention of the House to the state of the miners in Cornwall. On a former occasion I presented one of their petitions, which set forth that on the last Midsummer quarter the price of copper ore was 11 per cent. lower than at the commencement of the year, 18 per cent. lower than in 1847, 25 per cent. lower than the average of the last 15 years; and the effect of this reduction of price upon the wages of the miners of Cornwall was equal to 17s. 1d. upon every ton of ore they raise. The manner in which the Cornwall mines are worked is most interesting. The miners are paid in proportion to the quantity and value of the ore they raise. The quantity of ore annually raised is about 50,000 tons. About 22,000 persons are engaged in raising that ore. The effect is easily told. The amount of loss which this reduction in the price of ore has produced upon

the owners of the mines, and the amount of injury which the poor miners must have sustained is obvious. (Hear, hear.) What is the condition of Cornwall? Let me read to the House an extract from the last number of the *Cornwall Royal Gazette*:—"A hope is at this moment afforded that the weather is undergoing a favourable change, inasmuch as the last four or five days have been attended rather by squalls and heavy showers, with sunshine between, than by continued cloudy soaking weather. Still, if a decided and permanent improvement should now take place, which is rather to be hoped and prayed for than confidently expected while the wind hangs in a wet and stormy quarter, nothing can repair the damage already done. The standing wheat, over ripe, must have had a large quantity of grain beat out by the heavy gales and squalls. The barley, soaking on the ground, is in many cases sprouted. The potatoes, so universally struck with the blight that not a single healthy plant is to be seen, might have escaped extensive destruction, if the tubers were ripening in a warm and dry soil; but, in the cold and water-soaked ground, the plague spot had been hurried on to complete rottenness, and the mischief, it is to be feared, has extended to the unripe tubers, which, under more favourable circumstances, would have escaped destruction. With all this there is a diminution in the exports of the country amounting to 3,828,304, upon the first six months of the year, a diminution likely to be much greater in the second half, for in June it was no less than 953,358, which is at the rate of 5,729,148, for six months. With this diminution in our foreign trade, equal to a fifth or sixth part, and with the large importations of food which a deficient harvest will require, and which gold must be sent out to pay for, the country will be put in peril of another commercial crisis, aggravating and extending the suffering that must press upon all. We, unfortunately, shall have a large share. Most melancholy is the present appearance of our mining districts. For the former busy and exhilarating scene, we have comparative solitude; engines dismantled, others ceased to work, shops closed, hundreds of cottages deserted, and none to take them, their late owners having gone to seek in distant lands the opportunity to earn their bread which the cruel infatuation of their rulers denies them at home. All this we see, and the prospect is more dismal than the present suffering. If the miner had his potato ground uninjured, and his pig coming on, he might hope to rub through the winter. Of these essential supports he is deprived by the act of Providence, to whose dispensations we are bound humbly to submit; and, with this trial, of itself so severe, he is crushed by the hostile measures of the Government, which has sacrificed to foreigners the resources of the country, crushed the industry it is bound to protect, and would fain complete its work of ruin with the mines. God of his mercy look upon us! and if for our offences we must be visited by his scourges, blight, and pestilence, and evil rulers, may his correction lead to individual and national amendment, that upon our repentance he may take away his plagues from us, ere we are consumed by reason of his heavy hand." (Hear, hear.) I take leave to ask the noble lord at the head of the Government whether he is prepared to carry out this miserable abstract principle—to place one of the counties of England, whose population has hitherto been remarkable for its loyalty, peace, industry, and good conduct, in the same miserable condition as the people of Ireland? and what for? To carry out a crude, rash, miserable theory, and to support a monopoly. (Hear, hear.) Yes; one of the grossest monopolies, to advance the interest of those who have vested their money in foreign mines. With respect to the smelting trade, which the Government urge as a reason for this bill, let us see how the case stands. I have here a return of the imports of copper ore, and I find that even during the present year, which has not been remarkable for the briskness of its trade, the imports have exceeded, by 2000 tons, the imports of any preceding year. I shall be told, I suppose, that if we reduce this miserable duty, of 6½ per cent., *ad valorem* upon the ore of Cuba and Chili, that we improve the smelting of France, Hamburg, and the United States. I am in a condition to show that this calculation is unfounded. Our weekly smelting amounts to 400 tons; in France it is 10 tons a week. But when the right hon. gentleman talks of protection which the freights from Cuba affords to the miners of Cornwall, I beg leave to ask him whether the smelters at Swansea, the "copper bottoms," as they are familiarly called in the City, are not far better protected by the difference in the price of coals in this country, and that of this article in foreign countries? The Chili ore, which is the finest, takes 12 tons, the Cuban from 14 to 16 tons, the Cornwall ore, which is the most inferior, 20 tons. But a smelter at Swansea obtains his coal for 4s. per ton; in France, the average price is 12s. 2s. a ton; in Chili, the cost of smelting is 10s. 16s. per ton; and in the United States, the cost of smelting is 16s. 10s. per ton. Is it not, then, perfectly ridiculous that any man should rise in this House and say—With this difference in the price of coal, the freight being the same to this country, to France, and to Hamburg, does it not stand to reason that no duty of 6 per cent., *ad valorem* would make such a difference as to close the market against this country. Yet this was the one argument which was formerly used by the right hon. gentleman the President of the Board of Trade, that unless we admit foreign ores duty free, we shall lose the smelting trade. I think I have already given a sufficient answer to that argument. (Hear, hear.) I shall not trouble the House with many more remarks; but I must take leave to arraign the conduct of the Board of Trade. I am sorry that it is so very seldom I have to discuss questions of trade without arranging the Board of Trade returns; but, somehow or other, I find that they are always wrong, and that they are always wrong in the way which favours their own views. I will not, on this occasion, arraign the conduct of Mr. Porter; but, as the right hon. gentleman opposite is responsible for the whole of this department, I presume that it is against him I must charge this extraordinary error. You will recollect, Sir, that the argument employed in favour of this bill six months ago, was that the importation of foreign copper ore had fallen off, and that we should lose the trade altogether, if we did not admit the ore duty free. Now, I will show you that this statement, if we are to believe the returns relating to trade and navigation, seemed to rest upon a good foundation. The value of the ore, as far as the trade of this country is concerned, turns entirely upon the amount of copper contained in the ore. It is not a question of how much ore may be imported, but how much copper may be smelted out of the ore. Now, I find, by the accounts relating to trade and navigation presented to this House, that for the six months ending the 5th July, 1848, the quantity of copper imported—that is the weight of metal contained in the ore that was imported—amounted to 1319 tons. According to the same statement, the weight of metal imported during the first eight months in 1846 was 5162 tons; in 1847, to 4017 tons, and in 1848, as I have said before, to 1319 tons. Now, on that statement, I am not surprised that the House of Commons should take the alarm, and suppose that the trade was entirely going from us. (Hear, hear.) But I will show the House that there is every reason to believe there was a greater quantity of copper metal imported in the first six months of 1848 than in any previous year—that the real amount is not 1319 tons, but 5395 tons. It appears that the amount of copper ore imported in the first six months of 1848 was 25,935 tons, containing 5162 tons of copper, or a proportion of 20 per cent. of the ore. The ore imported in the first six months of 1847 was 18,396 tons, containing 4017 tons of copper, or 21 per cent. of the ore imported. Now, in the first six months of 1848, the ore imported was 27,155 tons; according to the returns of the Board of Trade, that amount of ore contained only 1319 tons, which would give only 4 per cent. of copper in the ore; and, that indeed, would show a disastrous condition of our trade, bearing out every word the right hon. gentleman said in his speech on this subject, and justifying our regret even to some serious sacrifices, in order to prevent the loss of our trade altogether. But if, as I believe, the intrinsic value of the ore is as great as ever it was—if 20 per cent. is a fair proportion of copper to be found in the average importation of ore brought from Chili and Cuba, then 27,155 tons of ore would yield, not 1319 tons, but 5395 tons of copper. This return is signed "A. W. Fonblanque." I do not know who he may be, perhaps some pluralist, who combines the duties of editor of a newspaper with those of a secretary to the Board of Trade; and if so, the multiplicity of his business may account for the confusion of his returns; but if the miners of Cornwall are to suffer from his blunders, then it becomes a matter of no small importance that that board, of which the right hon. gentleman is the president, should produce these representations to the country, on which the happiness, the comforts, the prosperity, the subsistence, and even the lives of 100,000 Englishmen depend. These, I believe, are the misrepresentations, by means of which the Government succeeded in carrying through the House of Commons this resolution; and now, in the last days of August, when the House is stripped of its independent members, with a host of placemen at their back, now is their time to come forward, and, with a bankrupt exchequer, to cast away 40,000, a year. Already, at the ordinary rate of duty, 12s. 6d. per ton, which is all the duty payable on foreign ore, the quantity of ore imported into this country during the last six months alone would amount to 23,000,000 of revenue; and yet, casting this away, the Chancellor of the Exchequer is going to the Stock Exchange to sell stock which he does not possess. This is the position of the Government; and I arraign them for throwing away taxes which have been levied heretofore at no cost to this country, while they must either increase the national debt, in this the 33d year of peace, or they must impose direct taxation, to be paid by the people of England, to compensate for this loss of revenue which has heretofore been paid by the Chilean and the slave-driver of Cuba. I arraign them for coming forward with false statements—the statistics of the Board of Trade, calculated to mislead the House into a belief that our importations have fallen off, and that our trade is ruined—statements by which the right hon. gentleman, the President of the Board of Trade, would persuade the House to pass a measure to the injury and the ruin of the loyal and heavily taxed subjects of the Crown in Cornwall, and to the great injury of those who have already, under the regulations of the Commissioners of Colonisation, gone to cultivate the foreign dominions of the Crown in the eastern world.—The noble lord concluded, amidst loud cheers, by moving that the bill be read a second time that day six months.

Mr. WYLD seconded the motion. His reason for taking this course was, because her Majesty's Government had brought it forward at such a late period of the session, and because the people of Cornwall would, at no distant day, be reduced to a state of utter ruin. The county of Cornwall had been known from the earliest date of its minerals. During late years, a large and important in-

terest had sprung up, and a population of 118,000 were solely dependent on the prosperity of the mining trade. The mining interest of Cornwall had found out that would be the ultimate effect of this measure, if it passed, by the recent large importations of foreign ore. The result of this importation already was, that a fall of nearly 20 per cent. had occurred; and this reduction had plunged the entire of the mining interest into a state of great embarrassment, he might almost say ruin. The case of the miner was different to that of the manufacturer. The manufacturer, if thrown out of work, could find employment elsewhere; but the miner had no such resource—he could only find employment at that sort of labour in which he had been brought up, and only in mining districts. He also confirmed the statement of the noble lord (Lord G. Bentinck), that the returns from the Board of Trade were erroneous. This was not a question of free trade, but a question of employment of the people. They might change their markets to Chili or to Cuba, but would that change benefit the people in England, or make up for the people who would be thrown out of employment by the operation of this measure? At present the trade in copper ore employed 20,000 tons of shipping, and it was owing to this trade, and the return freights of coal, &c., that the country owed much of its prosperity. If the present duties were removed, the Cornish miners would be exposed to a great source of competition, which they had hitherto escaped. By the change of 1842, the miners had derived no advantage whatever, but any benefit which had arisen from the measure had gone to the shipowners. It was urged that there was a necessity for a change, in consequence of a decrease in the importations, but that decrease had only arisen from legislative causes. The importation was for a time reduced, but the quantity produced was the same. The duty, however, had not operated against the importation, for, taking the average of the last three years, the amount of ore imported was as great as at any other similar period, so that the data upon which this measure was founded were altogether wrong. It had been said that there were smelting-works at Hamburg, but they could not affect the English smelters, inasmuch as they had a freight of 10s. per ton to pay upon the coals. Then they had been told of the smelting-works of the United States; but, in the United States, they only smelted the rich ores of Cuba; and the total amount of copper produced from the United States smelting-works did not exceed 50 tons a month. Then, with regard to France, the importation of copper ore into that country did not exceed from 1500 to 2000 tons in the year. In fact, the English smelters acknowledged that they had nothing to fear from foreign competition. It had been said that there had been a decrease in the quantity of copper smelted in England, in consequence of those duties; but he denied that such was the case. The export of copper from England to France had, for several years past, shown an amount of increase, both in quantity and value. One of the great arguments used in favour of the Government measure was, that the continuance of the present system was against the principles of free trade. He denied that such was the case. The free trade tariff of 1844 gave to many metallic manufacturers a protection of 10 per cent. The copper miner, however, did not ask for such a protection; he only asked for a protection of 6½ per cent. The question was, whether it would or would not advantage the manufacturers of Lancashire to lose 100,000 customers in Cornwall, in order to gain 50,000 customers in Cuba, each of the Cornish customers being in the habit of purchasing their manufactures to three times the amount of the Cuban customer. The miners of Cornwall had hoped that this question had been finally settled in 1844. Upon the faith of that settlement, large sums of money had been invested in mining speculations in Cornwall; and, such being the case, he called upon the Government not, on theoretical grounds, to disturb that arrangement.

Mr. LABOUCHERE: Considering that this question debated to-night has been discussed at a much earlier period of the session, as early as the 17th of April, in the presence of many persons of great experience and authority, I am sure the House will readily excuse me if upon the present occasion I do not occupy much of its time. (Ironical cheers.) The noble lord has blamed the Government for having allowed the second reading of the bill to be brought forward at this period of the session, and he stated that it had been discussed at an earlier period, that it would have been less favourably received. On the 17th April, when this subject was discussed, there were 102 in favour of it, and only 35 against it. The charge, therefore, that the Government purposely delayed the measure till a late period, because they believed it would not be favourably received by the House, cannot be fairly made against the Government. (Hear.) I should be surprised if the house did not support this measure; I cannot conceive that it is necessary to state arguments to show that the reduction of the duty upon a raw material which enters into the staple manufactures of the kingdom, would not be an act of justice and of policy. The only reason why it was not sooner brought forward, arose from a question of revenue. But as regards that question, I still adhere to the declaration which I originally made—that the revenue was slipping from the Chancellor of the Exchequer's hands—it had come down to the sum of 40,000*l.* a-year. There has been a gradual diminution in the quantity imported for several years past. In 1845, there were 56,000 tons of copper ore imported; in 1846, the quantity imported was only 50,900 tons in round numbers; and in 1847, it had come down to 40,900 tons in round numbers. The noble lord says that there has been a slight increase in the present year. Lord GEORGE BENTINCK: I said that the importation this year was the largest amount ever imported. (Hear, hear.)

Mr. LABOUCHERE: Even if there has been some increase, I do not think that it can be set against the continuous diminution; and though I will not assert it positively without the returns before me, I think it possible that the increase may be accounted for by the announcement having gone out to Cuba of this measure having been introduced, and the duty removed. (Ironical cries of "hear, hear," from Lord George Bentinck.) While I am on this point, I will advert to an accusation which the noble lord made against the statistical department of the Board of Trade, to which he alluded, as is his wont, in no very measured language. That attack has been directed against a very distinguished officer of that department, Mr. Fonblanque—a name that cannot be mentioned without respect. (Hear, hear.) But the noble lord, in that unfortunate habit in which he indulges, whenever he thinks that he has detected an error, has treated that officer, not as one who might have fallen into an error, as we all are liable to do, and as the noble lord himself sometimes does, but as a public delinquent, and as one who had some discreditable cause for the error which he has made. (Hear, hear.) But the error, if it can be called one, to which the noble lord has reverted, admits of a very easy explanation. The noble lord must be aware that since the resolution was passed on which this bill has been founded, a change has taken place in the mode of taking the duty. The duty has been taken for the last three months, not on the metal contained in the ore, but on the ore itself. (Hear, hear.) The amount of ore on which the duty is paid is given correctly.

Lord GEORGE BENTINCK: I said charged, and not paid.

Mr. LABOUCHERE: I believe that the error which the noble lord thought he had discovered is founded on this, that for the last three months the copper ore imported from foreign countries had been charged with duty on the ore itself, and not as formerly, on the metal contained in that ore; and if the noble lord looks into the tables furnished by the Board of Trade, which I have done hurriedly, since the noble lord drew my attention to the matter, he will find that this is obviously the case. (Hear, hear.) He will perceive that there has been no duty paid on the metal as formerly, but that the duty has been paid on the ore itself—that the amount of duty was charged on the metal for the preceding three months, and on the ore and not on the metal for the last three months—(hear, hear)—and so it appears in the returns.

Lord GEORGE BENTINCK: That proves my case. (Hear.)

Mr. LABOUCHERE: I wish the noble lord would allow me to proceed without these constant interruptions. The noble lord would not have the head of the statistical department of the Board of Trade say that the duty had been received on the metal, when it was received on the ore itself.

Lord GEORGE BENTINCK: You misrepresent me—I did not make use of the word "received." There is all the difference imaginable between duty charged and duty received. (Hear, hear.)

Mr. LABOUCHERE: I fear that I have not made myself understood. The duty was charged formerly, per ton, on the metal, and we gave in returns to the House of Commons of the duty, not on the quantity of ore, but on the metal contained in it; but latterly the duty has been charged on the ore, and not on the metal at all, and consequently the tons of metal are no longer brought into account. (Hear, hear.) However, I will not detain the House any longer on this matter. I think I have said enough to prove to the House that there really was no ground for what I must call again the most unwarrantable attack which the noble lord has made on a most excellent officer. (Hear, hear.) The noble lord has said that I always defended the gentlemen connected with the office to which I was attached; but I can tell him that I would not defend any man, either in the Board of Trade, or anywhere else, who I did not think deserved to be defended; but when I hear any subordinate officer in any department with which I may be connected, as I believe, unjustly attacked, I shall always be ready to defend him to the best of my ability. (Hear.)

Lord GEORGE BENTINCK: You have not succeeded to-night, at all events. Mr. LABOUCHERE: The noble lord said that this measure was all for the benefit of a few smelters, who have a monopoly of the smelting trade in this country. I have the most perfect confidence that this measure will prove beneficial to the trade generally of this country. The copper, when manufactured, is allowed to be introduced into this country, and the consequence is that the only real practical check that can be applied to the foreign smelting trade is by allowing the competition which this bill will ensure. I have no fear whatever but that this measure will be for the advantage of the smelters of this country. I believe that this country may continue to be the site of the smelting trade of the world, and I hope that it will be so; but I feel that that pre-eminence cannot be maintained by any attempt at monopoly, and by fixing undue prices by the miners on their produce. (Hear, hear.) And here I must deny the assertion made by the honourable gentleman who has just sat down, that the admission of foreign ores will prove detrimental to the Cornish miners. I should be most sorry to inflict a blow upon that important body, but my belief is, that the mixture of foreign ores will be advantageous instead of injurious to them. Considerations of revenue had long prevented this useful and necessary measure from being sooner adopted. I am satisfied that it will prevent injurious

consequences to the mining interests of this country, and I am also convinced that to the community at large it must be productive of important advantages.

Mr. HENLEY said, he believed that the charge made by the noble lord was expressly directed, not against Mr. Fonblanque, or Mr. Porter, or any other subordinate, but against the right honourable gentleman himself. (Hear, hear.) The noble lord had stated distinctly that he would not charge any subordinate, but that he would make his charge against the head of the office. The right honourable gentleman said that from the time the resolution passed the House the copper had not been assayed; that the duty was charged, not on the copper, but on the copper ore. The printed paper gave the copper ore for the whole six months. How was it to be distinguished upon which part the duty was charged? How was any one to distinguish, out of the 27,000 tons, which was charged one way, and which was charged the other way? It was not the mode in which a public account ought to be kept. Any one looking at it superficially would be deceived. There was nothing to indicate when that mode of charging the duty had taken place. It had the effect of making the importation appear in value far less than it really was. It was a clumsy way of keeping accounts, and did not make plain the true state of the case. Suppose this bill did not pass, how would they charge their duties? The right hon. gentleman said, that the only reason why what was now proposed had not before been done, was on account of the state of the revenue. What was there in the present situation of the Chancellor of the Exchequer to make him able to give up revenue? In 1842 he took a very different view of this question; he did not urge it on the ground of the revenue, but said they must see that they did not inflict injury on the great mining interests of Cornwall. Would he pretend to say that the great mining interests of Cornwall were in a better state now than they were in 1842? Did he take care that this measure did not necessarily injure the Cornish miner, whom, in 1842, he was anxious to protect? Unless they could show that the advantages would be greater than the loss to the people whose bread depended upon it, he must say that they were running the imminent risk of increasing the misery of this country, by throwing out of employment a most loyal and industrious set of people.

Colonel THOMPSON said, that there was one party not yet represented in the debate, for whom he begged to say a word. The manufacturing interests of Yorkshire had been kept out of view. There were two ways of obtaining copper—one by digging in Cornish mines, and the other by sending cargoes of manufactured goods abroad, and bringing foreign copper home in exchange for them; and what they had to consider was, which method would be most beneficial to the country at large. But they should not take their dinners from the manufacturers of Bradford, to give them to the miners of Cornwall. There was one hint, indeed, which he could not help throwing out for the consideration of honourable gentlemen opposite. There was their shipping interest. (Hear, hear, and laughter.) They should consider how the shipping interest would be benefited by carrying out manufactured goods from this country, and bringing foreign produce back. That was a more important interest than the Cornish mines. (Laughter, and hear, hear.) That was his navigation law.

Mr. NEWDEGATE supported the amendment, and complained that the bill had been delayed so long, that 40 placemen were of serious importance upon a division at the present period of the session. The House, too, set at such hours and so long, that their debates were necessarily compressed into the smallest possible compass—(loud cheers and laughter)—and the consequence was, that their constituents would never know what arguments were used by them upon the question; or, at least, not until long after the bill had passed. He could not avoid commenting upon the appearance in the debate of the hon. and gallant Member for Bradford, who rose to put in a claim for Bradford—for the manufacturers of Bradford—whose productions were already protected by a duty of 10 per cent. Now, he (Mr. Newdegate) begged to say, that he appeared to support the interests of his constituents, who had elected him for that purpose, but not to claim any protection for them at the expense of any other portion of their fellow-countrymen. Protection against foreigners he claimed for them, but not against their fellow-subjects. With reference to the returns from the Board of Trade, there could be no doubt that, as this particular item was given, it was calculated to mislead the public; and he had frequently observed that all the errors were in favour of the theory of free trade.

Mr. W. BROWN defended the returns, and denied that the woolen manufacture had greater protection than the copper trade of Cornwall. He supported the abolition of these duties, because, unless they were repealed, we should not only lose the smelting trade, but the duties also. The measure was a wise one in all respects, and he hoped to see it triumphantly carried.

Mr. MUNTZ opposed the amendment. Unless the copper manufacturers of this country had the raw material as cheap as the foreigner, it was impossible they could compete with him, or hope long to enjoy the superiority in smelting which this country possessed at present. He denied that the smelting trade was a monopoly, for any person who had adequate capital might engage in it. After a few words from Captain VISE, Mr. CAREW said, he felt bound to state, that the mining community, in the eastern division of Cornwall, were suffering from the greatest distress; and he had several documents in his possession which would fully bear out this statement. He had been assured that the great bulk of the population in the mining districts of Cornwall would not find employment if this bill passed, as the mines would not be worked, and there would be no occupation for them in the agricultural portions of the county.

Mr. E. TURNER was prepared to support the bill. He denied that any petitions of any consequence had been presented from the mining districts of Cornwall against it. Indeed, he believed that the great mining interest of Cornwall was in favour of the proposition of the Government. He knew that he could put his hand on the list of copper mines in Cornwall, and could point out four, at least, in one district, which afforded much larger profits than had been alleged even in foreign mines; and he was sure that the proprietors would not come to that house in the shape of paupers. He understood that the honourable Member for Bodmin (Mr. Wyld) was engaged in forming a new copper company; and if he succeeded in doing so, he (Mr. Wyld) would be entitled to the thanks of the county of Cornwall.

Mr. VIVIAN deprecated the removal of the duties, especially as copper had fallen 17*l.* in price since the noble lord (Lord J. Russell) made his statement.

After a few words from Mr. MACGREGOR, Mr. NEWDEGATE, and Mr. E. TURNER, in reply (amid manifestations of impatience on the part of the House), the House divided—For the second reading, 77; against it, 21; majority in favour of the second reading, 56. The bill was then read a second time.

On Wednesday morning, the CHANCELLOR of the EXCHEQUER having moved the order of the day for going into committee on this bill, Lord G. BENTINCK rose to oppose the motion.

The CHANCELLOR of the EXCHEQUER hoped the noble lord would not persist in his opposition, but reserve it for the next stage. The effect of the noble lord's persisting would be to prolong the sitting. (Hear.)

Lord G. BENTINCK said nothing should induce him to allow the bill then to pass through another stage. The House had commenced sitting at 12 o'clock, and it was now 20 minutes past three. (Hear.)

The order of the day was then postponed.

On Wednesday afternoon, on the motion of the CHANCELLOR of the EXCHEQUER, the House resolved itself into committee on the bill, when the several clauses having been agreed to, on the schedule being read, Mr. HENLEY said, he meant to move an amendment on the subject of the duty. As the schedule stood, a duty of 1*s.* per ton was to be levied on all copper ore imported. He would allow that duty to remain as applicable to all copper ore the produce of our own colonies, but he would propose a higher rate of duties on ore imported from foreign countries. The same question was involved here as in the sugar duties, with reference to the encouragement given to slavery; and he contended that copper ore from Australia, considering the great length of the voyage and other circumstances, could not be imported with the same advantage as ores produced in Cuba and Chili, if the duties were similar in each case. His amendment was, that while the duty per ton on all copper ore imported from our colonies should be 1*s.*, the duty per ton on copper ore imported from foreign countries should be one guinea. (Hear, hear.)

The CHANCELLOR of the EXCHEQUER observed, that the decision of the House had already been taken on the subject in the month of April, when it was resolved, that all copper ore, whether of colonial or foreign produce, should be admitted at 1*s.* a ton. He would not repeat the arguments which he had used in April, and again a few nights ago. He believed that the admission of foreign copper into this country would not only benefit the consumer and the British manufacturer, but the producers of British copper, as they would be mixed together with advantage. A few years ago a large proportion of the copper produced in this country was exported—he believed that nearly one-half of the British copper was exported. It was, therefore, clear that British copper could compete freely in the markets of the world, for the price of it must be influenced by the price of foreign copper abroad. It was, surely, most advantageous that copper should be largely brought to this country, where it would be smelted and manufactured. Why should they deprive the country of this important branch of trade? Similar advantages would result from the admission of foreign copper that had followed the admission of foreign wool. By the admixture of foreign copper ore with British, a great improvement was made in the manufactured article—the consequence of which was, that the manufacturer obtained a decided advantage, and the situation of the artisan was improved, by the very great additional employment given. In illustration of the benefits derived from that admixture, he would beg to state the comparative amount of exports during two periods of four years each. In the four years from 1838 to 1841, both inclusive, the whole amount of unwrought copper exported from England was 33,000 tons. In the four years from 1843 to 1846, both inclusive, the quantity was 34,000 tons, being an increase of 1000 tons. Of wrought-copper, the quantity exported during the corresponding periods was—for the first four years, 1838 to 1841, 24,000 tons, and for the second period of four years, subsequent to 1841, 35,000 tons; showing an increase of 11,000 tons in the exports of British manufactured copper goods, and proving that the manufacture of copper goods in this country had derived very considerable benefit from the admixture of foreign copper ore, and that great advantages were thereby obtained by the artisan. He believed, therefore, that for the benefit of the British producer, smelter, manufacturer, and consumer, the introduction of foreign copper ore was essentially beneficial. (Hear, hear.) He would not just then repeat any further arguments in support of his views, for the question really was one which had been practically decided before.

Mr. NEWDEGATE said, that a comparison of the produce of the several copper-producing countries would illustrate the importance of the subject to England. At present, England produced 55 per cent. of the entire of the fine copper that was used in the world; Russia produced 16 per cent.; Austria, 9; Norway, 3; Prussia 3; and Sweden, 3 per cent. In the United States a very small quantity indeed was smelted; so very small, that it was quite too contemptible to be taken into consideration. So that the real fact was, that although a differential duty was important to the poor people of England, the

conduct of England could not materially affect the proceedings of other countries. He trusted, therefore, that the trifling protection proposed by the hon. Member for Oxfordshire would be agreed to by the House.

Mr. WYLD said, he would not go into the general question involved in this bill, and which had been fully discussed and disposed of on a recent occasion, but would confine himself to a point that bore on the amendment now brought forward by the hon. Member for Oxfordshire. He would at once, then, observe that, under the disguise of this Act for the repeal of a small duty on copper ore, there was that concealed which would expose the produce of free labour to competition with that produced by slave labour. This was the first time since the passing of the Emancipation Act that it had been attempted to place the freemen of Cornwall in competition with the slaves of Cuba. Such, however, was the fact. He (Mr. Wyld) held that the question of free trade was not at all involved in the subject before them, and why? Because he maintained that the duty, which was called a protecting duty, was not a protection at all, as he thought he had shown the House the other night. But the question to which he had adverted just now as involved in this bill, small and trivial as it now might seem, would, by-and-by, assume a far greater importance; because, if the principle of a competition with the slave labour of different parts of the world was to be allowed to obtain with regard to the free labour of our home population, it could scarcely be doubted that it would be generally deprecated throughout this kingdom. (Hear, hear.) He was aware that it might be said that Cuba was the only slave country with which the miners of Great Britain could be brought into competition. It was admitted then—indeed, it was a fact of which there was ample published evidence—that the mine proprietor of Cuba did employ slave labour; and he would ask that House whether, after the sacrifice on the part of this country of 30,000,000*l.* of money, the gentlemen that occupied those, the Ministerial, benches, were prepared to give the lie to all their past acts and professions, by permitting the slave-cursed population of Cuba to be brought into competition with those whom he and the hon. Member for Oxfordshire would be believed, after all their talk of liberty and liberal institutions, that such a principle would be tolerated? Australia was cultivated, as regarded its mines, by British labour, principally taken there from Cornwall, and from Wales, and had brought into the coffers of this country nearly 200,000*l.*, every shilling of which had been spent on British manufactures; and the larger the amount of copper ore that could be raised in Australia, the larger would be the demand she would make for British manufactures—whether of Bradford cloth or any other of her manufactured fabrics. Would they, then, expose the Australian miners to competition with the population of Cuba? (Hear, hear.) They had decided that the West India colonies had a right to a protection on their sugar, and the same principle ought to be carried out with regard to Australia. He did not see, therefore, how the proposal of the hon. Member for Oxfordshire, which he considered a perfectly fair one, could be contested. At all events, there could be no question that the feeling of the people of Australia was in favour of the principle it involved. The hon. Member, then, in conclusion, observed, that when the bill was last before them, he had thought that the British miners; they, however, finding that that House had decided against them, did not now come forward to ask protection merely for themselves; but, in their name, he would now ask the House that, at all events, there should be conceded some differential duty in favour of the miners of our colonies. He should, therefore, support the amendment of the hon. Member for Oxfordshire.

Mr. SPOONER: Although he was in favour of protection to British trade, yet as the House had already decided against the principle, he should wish to see the experiment carried fairly out; and as the British manufacturers were subjected to competition with the foreign, they ought to be allowed to buy their raw material in the cheapest market possible. (Hear, hear.) He would make but one exception, that of slave produce; and if the hon. Member for Oxfordshire would modify his motion so as to confine it to slave labour produce, he (Mr. Spooner) would support him. But, otherwise, he could not, because he thought that in the experiment of free trade, they should have no partial legislation. (Hear, hear.)

Mr. H. DRUMMOND would not deny the assertions of the right hon. gentleman the Chancellor of the Exchequer, with regard to the benefit which the British smelter derived from the admixture of foreign copper ore with British—but, unfortunately, he had used an illiberal word, which was most inappropriate, when he mentioned the example of foreign wool; for the returns showed, that whilst the exports of woollen manufactures had diminished, the imports of foreign wool had increased.

Mr. MUNTZ said, that the proposition was one which cut in different ways, and required to be viewed from more than one point. The amendment of the honourable Member for Oxfordshire would interfere in one respect very materially with his (Mr. Muntz's) constituents. He had seen some time ago specimens of Chilean fine copper, and they were quite equal to British; and, at the present moment, he believed there were 600 tons of Chilean copper in the London market. Now, if the duty proposed by the hon. Member for Oxfordshire to be levied upon the foreign copper ore was adopted, the consequence would be an increase in the cost of the raw material to the British manufacturer, who would be thereby completely disabled from meeting the foreign manufacturer in the market, where he is scarcely able to compete with him at present. He had been often accused of voting one way and speaking the other on questions of free trade; but, he should tell hon. gentlemen opposite that he was every ready to support protection, but not the protection they advocated. Their protection was partial in its operation, but he should support protection that would equally extend to all. The protection for which they contended would not protect the export trade, which would have to compete with countries in which no duty was chargeable, and, therefore, he could not give it his support. (Hear, hear.)

Mr. NEWDEGATE said, that his former arguments on this bill still remained untouched. The manufacturer of Birmingham had 10 per cent. protection, and had, therefore, no right to quarrel with the 6 per cent. protection which was enjoyed by the Cornish miner. Mr. VIVIAN said, he did not think it had been shown that the manufacturer was injured by the measure which was now attempted to be got rid of. It should not be forgotten that Birmingham was as much benefited by Cornwall as Cornwall was benefited by Birmingham. (Hear, hear.) As to the argument of the right hon. gentleman, the Chancellor of the Exchequer, that the produce of the country would be improved by the admixture of foreign ores, he begged to remind the House that the bill would have the effect of introducing the poorer ores of Cuba; and, therefore, the result which the right hon. gentleman anticipated was not likely to be realised.

DUNSTON said, he would not have troubled the House with even the few words he wished to say, were it not that he had not heard the interests of those in his own country, whom this measure would affect, at all alluded to. He could assure the House that there were many miners in Ireland whose interests were concerned in this question; and he was convinced that, if this free importation from every other country was permitted, those parties would be seriously injured. (Hear, hear.) There were several thousand persons depending on the success of the mines in Ireland, and in Berkenhead Mines alone there were 700 men, 30 women, 193 boys, and 160 girls employed, and four vessels, with a crew of 52 people, were engaged in conveying the produce to Swansea. Now, if this population should be thrown out of employment, the result would be that they must all be thrown on the resources of the Poor Law, and great destitution would be produced. (Hear, hear.) He should vote for the proposal of the hon. Member for Oxfordshire.

Mr. ROBINSON confessed he thought there was a good deal of fairness in what had been said by the hon. Member for Birmingham, that as he was in favour of the principle of free trade he wished it to be applied generally, not partially. For his part, however, he (Mr. Robinson) was disposed to agree rather with the hon. Member for North Warwickshire, that, as he considered the principle of free trade a bad principle, he would not be a party to carrying it further than he could help. He would, therefore, on this, and on all other occasions, enter his protest against it. The error of the free traders, he thought, was in attaching an undue importance to the consumers, as contradistinguished from the producers of the country. Now, in his opinion, if cheapness was produced at the expense of the producer, the effect would ultimately be to place the consumer in a position of standing the cheapness in a worst position than before. That was his reason for supporting the principle of protection.

Lord G. BENTINCK said, the Chancellor of the Exchequer had used the singular argument, that the greater the supply of foreign copper ore, the higher would be the price of the article produced in this country. ("No, no," from the Chancellor of the Exchequer.) Then he would wish to know what the right hon. gentleman's argument was, when he stated that this measure was all for the good of the producer of copper in Cornwall. (Hear, hear.) The right hon. gentleman had stated, that the effect would be the same as in the case of the introduction of foreign wool; but, though there might be a considerable analogy between the two articles, it should not be forgotten that the price of wool had not been so low during the last century as it was at the present moment. (Hear, hear.) He thought that it was perfectly clear, that the price of copper paid to the Cornish miner must be considerably reduced by the measure. In fact, copper was now 11 per cent. cheaper than in January last, before this measure had been introduced, and 25 per cent. cheaper than last year. (Hear, hear.) The hon. Member for North Warwickshire (Mr. Spooner), who, as he noted the Members for North Warwickshire were sitting together, he should describe, in the Parliamentary sense, as the younger Member (loud laughter), had commented on the Cornish free traders, and was ready to pair off in favour of this bill with the advocates of free trade opposite. He was sorry to find that the hon. gentleman should show such symptoms of approaching his second childhood. (Laughter.) The noble lord at the head of the Government had talked of having quelled rebellion in Ireland—but let him take care, if he deprived the people of the means of subsistence, lest he might find himself mistaken in his hopes upon that point. He held in his hand a letter, written by a landed proprietor at St. Austell, in which this measure was thus alluded to:—"Is the Government mad, and will they throw our unfortunate country into a state of insurrection by their acts? You know the people of this district well—you know their loyalty, their intelligence, their patient endurance of severe labour, their extreme temperance, and natural contentedness, under circumstances of even more than ordinary suffering? These are qualities which, in a peculiar manner, distinguish the Cornish miner and general labourer; but you know also, that with all these virtues, their loyalty, their intelligence, and the high order of their intelligence as labourers, there is mixed up a determination of character, which suffering will call into action, and which is dangerous to tamper with beyond a given point." (Hear, hear.) He would not go more fully into the question at present. It had been repeatedly shown, that the smelters were in no such deplorable condition, and that the price of the ore which they purchased had fallen in a much greater degree than the price of the copper which they sold. Since 1842 the price of copper ore had fallen from 84*l.* 12*s.* 6*d.* per ton to 56*l.* 17*s.* 8*d.*, being a diminution of 27*l.* 10*s.* 9*d.*, while the price of copper had only fallen from 90*l.* to 78*l.* 10*s.*, being a falling off of only 11*l.* in the copper, compared with a falling off of 27*l.* 14*s.* 9*d.* in the ore. It was unnecessary for him to say more, in order to convince every man how great the profits of the smelters must be now compared with their profits in 1842. The noble lord read extracts from speeches of Sir Robert Peel and Mr. Labouchere, in 1846, in favour of retaining the settlement made with regard to copper ore in 1842, and concluded by stating that, for the same reasons, he should now feel bound to give his support to the amendment of his hon. friend.

Mr. SPOONER explained, that in supporting this measure, he did so merely on the ground that as the Cornish miners had formerly enjoyed the removal of protection from the manufacturer, they had now no right to complain at being deprived of protection themselves.

Mr. MUNTZ begged to inform the noble lord that the reduction in the price of copper since 1842 had been 19*l.* a ton, and not 11*l.*, as the noble lord had stated.

Mr. LACEY wished to know in what respect the Chancellor of the Exchequer supposed that the present measure would benefit the Cornish miner?

The CHANCELLOR of the EXCHEQUER explained, that what he had stated was, that the mixture of foreign and native ores would produce a better quality of metal.

Mr. LACEY said, he did not know what grounds the right hon. gentleman had for thinking that there would be in future any British ore to mix with the foreign. If this bill were passed, it would stop a great number of the Cornish mines, and he would then ask, where the poor ores could be obtained to mix with the rich foreign ore?

Mr. WYLD said, as the Cornish miners would in future have to compete with foreign countries, he hoped the Chancellor of the Exchequer would permit them to obtain their timber and tallow without the payment of duty.

The committee divided—For the amendment, 15; against it, 43; majority against the amendment, 24. The schedules were then agreed to. The House resumed, and the report was ordered to be received next day.

The bill was reported on Thursday evening, and ordered to be read a third time on Friday. In the House of Commons yesterday, on the motion for the third reading of this bill, Lord G. BENTINCK moved, that it be read that day month.—The House then divided, when there appeared—For the third reading, 35; for the amendment, 25—majority, 14.—The bill was then read a third time, and passed. (Over.)

## HOUSE OF LORDS—FRIDAY, SEPT. 1.

On the Copper and Lead Ore Duties Bill being brought up from the House of Commons, and the first reading proposed, Lord Rosebery, upon introducing a petition which had been placed in his hands, signed by 21,443 working miners, and parties immediately interested in the working of mines in Cornwall and Devon, observed at some length on the injury which the measure proposed was calculated to be to the parties whose names were subscribed to the petition, and to their families. His lordship proceeded to point out the advantage which had been afforded to the foreign mines heretofore, and the comparative prices of copper at the present moment and heretofore, the depression in which he ascribed to the imports of foreign ore, which, during the present year, had been attended with a considerable influx, notwithstanding all that had been said in another place, as to the falling off in the imports of ore from Cuba and Chili. Another important feature, which he considered highly deserving of attention, was that of the encouragement the proposed bill gave to slave labour—the mines being worked principally by slaves, who were hired for a term of years. The circumstance of the reduction in the price of copper ore, combined with the disease, or, he might say, the destruction, of the potato crop, was of the first importance in the county of Cornwall, and he could not but arrive at the conclusion—if the proposed bill be passed into a law, that misery would ensue to a very considerable extent. It had been said, that the foreign mines would smelt their own ores, and that even this country was dependent upon them for raising the relative quantities; but such was not the fact; this country possessed a large tract of coal, and also the several descriptions of ore which were found necessary as a flux, or admixture, in the manufacture of copper; and hence it was absurd to suppose that the smelting process would be carried out in other countries to any extent. He felt it his duty to point out to the House the injury which the passing of this bill was calculated to do the miners of this country; and, in the performance of such duty, he should propose as an amendment, that the first reading of the bill be that day six months.

The Marquis of Lansdowne opposed the amendment. The measure of 1842 had injured the smelting interests of this country, and had been the cause of the establishment of works of that description, not only in Belgium and Germany, but in the United States and Chili. The objection of the noble lord was, that no bill should be introduced at that period of the session; he knew that the public would, notwithstanding the lateness of the session, approve of having the bill passed, and the concurrence of the House of Commons was a proof that the measure met the public approbation. He hoped the noble lord would not persevere in his opposition.

Lord Palmerston, in rising to lay upon the table a petition, which had been entrusted to him by J. T. Jeffery, Esq., of the Consols, read a portion of the petition, from which it appeared that that gentleman had under him, and in his employment, 20,000 persons; that the bill, if carried, was calculated to seriously affect the mining community; and praying that the bill should not pass.

Lord GRANVILLE defended the measure, and observed, that it was in accordance with the free-trade principle which had been admitted, and that it was calculated rather to enhance than to deteriorate the condition of the miner and smelter.

Lord REDFORD observed, that the House, he considered, had been treated with disrespect and contumely by the Lower House, inasmuch that they were called on at the close of a session, to pass measures within a few hours, while months had been consumed, either in their consideration by the Commons, or had been anxiously neglected. He could not but consider that it was an insult offered to the House, which would amount to justify them in rejecting the bill at that moment. The bill was introduced in the Lower House on the 14th April, read the first time on the 7th May, the second on the 26th August, and the third time on that very day, when it was handed over to their lordships to accept and adopt, without giving time for consideration. It was, he deemed, nothing less than an insult to the House. He would ask it even reasonable to take up the measure at this moment—indeed, it was utterly impossible to go into the matter, or the points pertaining thereto. The House of Commons had treated the Upper House badly—whether with an object, or otherwise, he was not prepared to say; but it was quite clear, without their lordships upholding their rights and privileges, that the Lower House would prescribe to them, in acts of this nature were allowed to pass by unopposed. It was absurd to say, that the trade—that of smelting—could be taken away from this country, for he had no hesitation whatever, in saying, that no country could compete with England, possessed, as it was, of its resources in the coal-fields, and the admixture of metals so requisite. The noble lord proceeded to point out that, while the Consols were treated with an import duty of 6 per cent., they really obtained a benefit of 35 per cent., and further remarked on the measures of Government, with regard to the drawbacks on tallow and timber, which were employed in the working of mines at home. He (the noble lord) was satisfied that, in case the proposed bill be carried, a considerable number of the mines now in operation in the county of Cornwall, must necessarily be suspended, as it would be impossible to return the ore of low produce, so as to pay the cost.

A noble lord, on the Ministerial bench, observed, that the effect of the duty imposed on the admission of foreign ore in 1842, was that of the establishment of smelting works abroad. It appeared, from a communication received from the consul at Philadelphia, in September, 1847, that two companies had been established at Baltimore and Boston, with the object of working American and Cuban ores, which would otherwise have been sent to England to be smelted; while other works were contemplated at New York, Pennsylvania, and other places. It appeared also, from a communication the noble lord had received, that in Chili a large quantity of ore had been smelted. It was, in his lordship's opinion, the simple question, whether ore required for the continent should be brought here for the purpose of smelting, and thus affording employment in this country, or confined to America, and other countries, and the manufactured copper produced be rendered therefrom. The noble lord, who entirely agreed with the Government as regards the employment of the collier and the smelter, or the maritime establishments.

Lord WYNDHAM objected to the bill, as having a tendency, if passed into a law, to encourage the slave trade of Cuba.

A considerable lengthened discussion ensued, which lasted for an hour and a half, in the course of which, Lord Montagu, and several other lords, took part; but as the arguments advanced, or information elicited, was merely a re-echo of the sentiments expressed in the other House, or by the previous speakers, we do not deem it necessary to follow them out in detail. A division took place, when the Ministers had a majority of four—the division being 17 in favour of the first reading, and 13 against—thus virtually, as we consider, admitting the bill, and passing the measure, as we presume, at this late hour of the session, no further discussion, or division, will take place.

## Mining Correspondence.

## ENGLISH MINES.

**ASHBURTON UNITED.**—Captain John Kernick (Aug. 29) reports—The lode in Hobson's 25 level continues the same; at present the end is in a disordered piece of ground, on the junction of the blue and the white killas. The existence of the copper branch being developed to the north of the junction of the tin lode, I computed its relative position in the 45 fm. level to be 14 fms. east of Hobson's shaft; and, by stripping down the capels of the tin lode in that drift, the copper branch is now seen to traverse at that point, and much the same in size and quality as in the 14 and 25 fm. levels. Thus, ore and entire ground is discovered on the copper branch, for 30 fms. high, which will work to profit—the ore producing by assays from 12 to 25 per cent. The setting of the pitches, on Saturday last, realised our expectations. I have taken four of the pitwork men to put a whim on, and to secure Parry's shaft; and, after clearing the cross-cut, which are all filled up, I expect to add to our monthly raisings of tin from the side lodes, in that part of the mine directly opposite the former bunches and leading channel of tin ground.

**BARRISTOWN.**—Capt. T. Angove (Aug. 25) reports—We have discovered the lode in the adit end, east of the slide; it is 3 ft. wide, composed of gossan, carbonate of iron, and lead, producing about 3 cwt. per fm. The winze sinking behind the adit end is deep enough for communication with the 16 fm. level; the lode in it is large, and mixed with lead. In the 16 fm. level end east the lode is about 2 ft. wide, and towards the bottom of the end it is well mixed with ore, and from the appearance of the ground about it, I consider it more likely to continue than anything we have seen in this level; the bottom of the level would produce about 1 ton per fm. We are sinking the flat-rod shaft under the 16 fm. level.

**BEDFORD UNITED.**—Captain James Phillips (August 30) reports—At Wheal Marquis the sumpmen are now engaged removing old and fixing new plunger-lift from the adit level to the 90 fathom level; the completion of this work will occupy, at least, the whole of this week, after which we hope to resume sinking the engine-shaft. There has been no lode taken down in the 90 fm. level east. The lode in the 80 fm. level east is 4 ft. wide, and will produce from 4 to 5 tons of ore per fm. We weighed, at Morvelham, on Friday last, June ores, 102 tons 4 cwt. 2 qrs.; and sampled July ores, 101 tons.

**CALLINGTON.**—Capt. J. T. Phillips (August 28) reports—The water is in fork at Kelly Bray, and we are about to recommence sinking the engine-shaft. The ground continues favourable for sinking in the north engine-shaft, now 8 fms. below the 100 fm. level. In the 100 fm. level south we have not yet got the lode. In the 90 south, no lode has been taken down. In the 80 east we have driven rather more than 3 fms. in the cross-course; the ground is favourable, and good stones of lead ores are met with occasionally. In the 70 fm. level east the lode is 2½ ft. wide, producing stones of copper ore; in the winze, below this level, now 13 fms. deep, the lode is much disordered, with stones of copper ore; the stopes are rather hard; the ore part of the lode is from 3 to 4 ft. wide—coarse work. In the 50 east the lode is 16 in. wide, and will produce about 2 tons of ore per fm.; in the 50 south, on the east side of the cross-course, the ground is soft for driving towards the great south lode. At the south mine, in the 125 fm. level north, the lode is 9 in. wide, composed of fluor-spar, with spots of silver-lead ore. In the 112 and 100 fm. levels north we are opening tribute ground. The 80 fathom level, between the both mines, is communicated, affording much benefit to the ventilation of the south mine. We intend sampling, to-morrow, a parcel of silver-lead ores, computed 89 tons, for sale on the 7th September. Samples will be forwarded to the different smelters.

**CARWINNING HILLS.**—The agent (August 28) reports—Since writing you, we have reached the limestone rock, in the new surface shaft, at a depth of 9 fms.; and, supposing the limestone bed to be about the same thickness as at the other shaft, we have 8 fms. now to sink to reach the vein; the lode in the winze contains a good deal of yellow copper ore—it is not yet in a settled state; the western level is still poor; the stopes, over the level, is yielding a fair quantity of grey ore, which we are preparing for the market. We are anxious to send off the ore we have dressed; but the ore bags are not yet received; and I was informed, at Ardrossan, that no small quantities could be sent but in bags. Mr. Paton has received the invoice of them; and no doubt but that we shall be able to get them in a day or two. The pulleys for the whim, I hear, are at the station; and, if so, we shall have it at work, probably, on Monday.

**CASCADE MINE.**—Captain Opie (August 31) reports—The adit is driven 61 fms. 2 ft.; at the point of about 30 fms. from the mouth of the adit we cut the river lead, small, but producing spots of copper ore of good quality. Just at the point which the adit level is driven to we are expecting to intersect another lode, which has not been proved by costeaning, but is to be seen by the waterfall, about 100 fms. east of the adit level, 2 ft. bit, chiefly composed

of quartz. We have about 20 fms. further to drive to take Wheal Susan lode, from which several tons of ore have been raised in the adjoining sett, at 10 fms. below surface; it will take about three months to intersect this lode, supposing the ground to continue as at present; the hill rising fast will give backs of about 50 fms., at which depth from surface the lode will be intersected. From this point to the south lode is about 50 fms., which would require nine months' driving before it would be taken, the ground being a light killas, stratified with veins of quartz—this lode would be at an increased depth from surface of 10 fms., or 60 fms. in all. It will require about 4000 ft. to cut the most southern lode, which holds out good expectations, as seen at surface. The adit level, in course of driving, is on a cross-course, composed of flookan, quartz, and mudiic. The supply of water is ample for all purposes of drawing stuff, pumping, crushing, and the other ordinary processes at surface.

**CWM ERFIN.**—Capt. S. Nicholls (Aug. 26) reports—The engine-shaft is now sunk 9 fms. 2 ft.; I hope to complete the sinking to the level by the end of this week, when the men will be employed to make a short cross-cut, to intersect the lode. The lode in the stopes, west of the engine-shaft, is not looking so well as last week, but it is strong, and in places contains good stones of ore; I calculate that it will produce about 6 cwt. of ore to the fm. The lode in the 20 fm. level, west of the whim-shaft, continues much the same as last reported. In the 10 fm. level, costeaning east, there is no alteration. The tribute pitches are looking well.

**DEAN PRIOR AND BUCKFASTLEIGH.**—Capt. H. Choake (Aug. 30) reports—Saturday last being the monthly setting-day, the cross-cut in the 40 fm. level was set as follows:—To drive 8 fms., or until the last Saturday in September, or cut the lode—price, per fm., 5l. 5s., by eight men. In order to carry the work into effect, the men will relieve in place, and work Saturday afternoons. We have suspended the driving in the 30 fm. level for the present, and have put the men in the cross-cut in the 40, or bottom level, in order to make all the progress we can to cut the lode in that level, having completed the necessary work in the engine-shaft, to take the machine whimbible to the bottom level, for drawing up the attle, &c., which will enable the men to get on faster in future with the driving.

**DEVON AND COURTENAY.**—Capt. N. Seccombe reports—In the end driving west, in the 40 fm. level, the gossan lode still continues large, yielding a great quantity of mudiic and peach; in the same level, the end driving east, on the south lode, the lode is 2 ft. wide, composed of mudiic, peach, and spots of ore. In the 50 fm. level, the men have this week driven on the lode we discovered in our cross-cut; east of the cross-course the lode is 3 ft. wide, composed chiefly of mudiic and soft spar, and producing good stones of ore in some parts of the lode. We have also continued our end north, on the cross-course, but have not intersected any lode this week.

**EAST CROWDALE.**—Captain Stephen Paull (August 26) reports—The lode in Diamond's engine-shaft, at Rix Hill, is 4 ft. wide, composed of capel, peach, mudiic, spar, elvan, and spots of tin; the ground in this shaft is exceedingly hard and difficult to sink—consequently, our progress is slow. The end driving west, on the course of the south lode, still continues to hold on good; it is upwards of 8 ft. wide, composed of peach, priam, spar, mudiic, and tin, and produces upwards of 1 ton of tin per fm.; the lode in the stopes, in the back of this level, is from 6 to 7 ft. wide, composed of peach, priam, mudiic, and tin, and worth 25l. per fathom. The end driving west, on the course of the north lode, is poor, though of a most kindly description; the lode is 3 ft. 6 in. wide, composed of capel, peach, priam, mudiic, spar, and spots of tin. We have to-day set a new shaft to be sunk on the course of the south lode; the appearance in this place is just as when last reported upon.

**EAST TAMAR CONSOLS.**—Captain J. Wolferton (August 28) reports—We held our monthly survey on Friday last, and I beg to hand you the following statement of the settings for the ensuing and measurements for the past month, with some remarks thereon, by way of report:—To drive north, in the 40 fm. level, 4 fms. stent, by four men, at 50s. per fm., and 5s. in 1l. for lead; the distance driven, during the past month, is 3 fms. 5 ft. 6 in.; the lode in the end, which in the early part of the month was tight and comparatively poor, is now easier, and will yield 8 cwt. of lead per fm. To drive south, in the 60 fathom level, 4 fathoms stent, by four men, at 35s. per fathom, and 5s. in 1l. for lead—distance driven 4 fathoms 5 feet 10 inches; the lode in this end has produced, on an average, 12 cwt. of lead per fathom; it is now worth 10 cwt. per fathom. To drive north, in the 46 fm. level, 3 fms. stent, by four men, at 55s. per fm., and 5s. in 1l. for lead—distance driven 5 fms. 2 ft.; this end has produced 7 cwt. of lead per fm., and will yield the quantity now; to drive south, in the 46 fm. level, 2 fms. stent, by four men, at 100s. per fm.—distance driven 3 fms. 1 ft. 6 in.; the lode in this end continues to be productive, but there is a good deal of water coming from it at present, and we expect an alteration daily. The shaft is driven 7 fms. under the 60 fm. level, and the ground is rather more favourable, and, in all probability, will become more so in course of the week. The following pitches were set:—In the back of the 60 fm. level south, by four men, at 5s. 5d.; ditto, by four men, at 9s. 6d.; ditto, by two men, at 8s. 6d.; in the back of the 60 fm. level north, by four men, at 10s. Ditto 46 fm. level, by four men, at 9s. 10d. Ditto 38 fm. level south by four men, at 11s. Ditto 25 fm. level, by six men, at 10s.; ditto, by two men, at 12s. Several other pitches were offered, but not taken.

**GREAT MICHELL CONSOLS.**—Capt. T. Richards (August 30) reports—The 45 fm. level, east of the sump-winze, is without alteration, and is at present suspended. In the 35 fm. level, west of the sump-winze, the lode contains mudiic, spar, and capel, with a small proportion of ore; the ground is very easy of progress; and, should it continue as it now is, 8 fathoms will be opened in this level this month; there being no improvement in this level, east of the engine-shaft, it is at present suspended, and the men removed to drive west of the sump-winze, in the 45 fm. level.

**HERODSFOT.**—Capt. John Medlen and Peter Dunstan (August 28) report—The lode is not yet cut in the 106 fm. level, in consequence of the sumpmen being employed in cutting the plat, but we hope to cut it in time for our next report. The lode in the 94 fm. level north is just as reported on last; in the south end, in this level, the lode is 2½ ft. wide, worth about 4 ton per fm.; the flookan course is close to the lode; the price for driving is 55s. per fm. In the 82 north the lode is 13 in. wide, producing 4 ton per fm.; in the 82 south there is no alteration since our last report; we have a winze sinking under this level, 20 fms. north of the shaft; the lode appears to be disordered in this place. In the 72 south the lode is nearly 2 ft. wide, producing 1 ton per fm.; in this level north the lode is 15 in. wide, producing 4 ton per fathom. In the 62 fm. level north the lode is in branches north of the slide, one part producing a little lead. Winsor's shaft is sunk 5 fms. under the 52 fm. level; and the rise from the 72 is up 12 fms. against it; we expect to have this shaft completed to the 72 in the course of the present month; in sinking this shaft under the 52 we have met with a good bunch of lead in crossing the lode. On the whole, the general appearance of the mine is as favourable as it has been for several months past.

**HOLMBUSH.**—Capt. William Lean (August 29) reports—The ground in the diagonal shaft, sinking below the 132 fm. level, is favourable; the lode in the 132 fm. level west is 20 in. wide, composed of mudiic, spar, and stones of copper ore. The lode in the 120 fm. level south is 3 ft. wide, producing 4 cwt. of lead per fm. The lode in the 110 fm. level south is 4 ft. wide, composed of quartz, priam, and lead—saving work; the stopes, in the back of this level, are also producing saving work. The lode in the 100 fm. level south is 2½ ft. wide, composed of spar and about 2 cwt. of lead per fm.; the flap-jack lode is 18 in. wide, composed of mudiic, spar, and stones of copper ore. Our last parcel of copper, computed 54 tons, was weighed at Galtstock Quay, on Friday last—real weight, 54 tons 4 cwt. 2 qrs.

**KIRKCUDBRIGHTSHIRE.**—The agent (Aug. 26) reports—The lode in the 50 end, west of Stewart's, is 4 ft. wide, with good stones of lead in places. The north lode is come out into the level, showing it to be the same as the counter in the level above; we have put the men to drive east on it to-day. The 40 end, west of Keith's, has a large lode, composed of brown jack principally, with good stones of lead, and a deal of sulphur mixed with it. The lode in the 30 end west is about 1½ ft. wide, looking more compact again, with spots of ore making their appearance in different parts of the end; the lode in the same level, east of Stewart's, is also becoming less in size, and a leader of lead coming in again to the north, worth, it may be, 3 or 4 cwt. of lead to the fm. At Keith's shaft, the lode is opening again in sinking, and good stones of lead coming in it. We intend sending off a cargo of lead the latter part of next week.

**MENDIP HILLS.**—Captain F. C. Harpur (Aug. 27) reports—The appearance of the lode in the 38 fm. level, south of shaft, continues much the same as it has been for several fathoms past, being about 2 ft. wide, composed of flookan, spar, and iron—ground not so favourable for driving as it was last week. In the slag department, I am glad to inform you, we find the slag staff at present removing to the dressing-floors, continues to improve in quality. We have a good pile of slags prepared for the furnaces—I think sufficient for four days' smelting—and intend to commence reducing it to-morrow morning.

**SOUTH BETSEY.**—Capt. J. Spargo (August 30) reports—In driving the eastern cross-cut we have intersected a branch, spotted with lead, underlying east, which carries with it a very hard capel, as was generally found in the Great Wheal Betsey, within a fathom or two of the lode; but we have got nearly through it. I intend to be at the mine on Saturday, when I hope to see the ground become safer.

**SOUTH WHEEL TRELAWNY.**—Captain W. Lean (Aug. 26) reports—We have driven through the elvan course in the 30 fm. level cross-cut, and are again in a beautiful killas strata—length of cross-cut from the shaft, 13 fms. 1 ft. 6 in.; there is water issuing from every part of the end, and, agreeable to an underlie of 18 inches in a fathom, the lode should have been intersected, but with a less underlie, lengthening the cross-cut; we have set it to drive at 6l. per fm. The quantity of water we have is just as usual—about two strokes per minute.

**TAMAR SILVER-LEAD.**—Captain J. Sprague (August 28) reports—The engine-shaft is sunk 4 fms. 2 ft. below the 175 fm. level; the lode in which is

3 ft. wide—saving work, but of a coarse quality; in the 175 end, south of the shaft, the lode is 18 in. wide, composed of capel, spar, and ore. In the 160 end the lode is still small and unproductive; in the winze, sinking in the bottom of this level, the lode is 2 ft. wide, producing good stones of ore. In the 145 end the lode is 18 in. wide—rich work, a promising end; in the winze, sinking below this level, the lode is 2½ ft. wide, interspersed with ore, but not rich. In the 135 end the lode is 4 ft. wide, 1 ft. of which is good work, and in a congenial strata for silver-lead ores. In the 125 end the lode is 6 in. wide, at present poor. At North Tamar, the engine-shaft is sunk 4 fms. below the 70 fm. level; the ground continues favourable for sinking; in the 70 end the lode is large; the part we are carrying is 4 ft. wide, composed of capel, with occasional stones of ore. We expect to sample, on Saturday, the 2d proximo, about 75 or 80 tons of rich silver-lead ores.

**TINCROFT.**—Capt. Peter Floyd (August 28) reports—At Palmer's, on the East Pool lode, the 80 fm. level west is worth 4l. per fm. for copper. The 70 fm. level west is worth 4l. per fm. for copper. At North Tincroft, the lode in the 100 fm. level east is worth 5l. per fm. for copper; in the 100 fm. level west the lode is 2 ft. wide, with good stones of copper ore. In the 90 fm. level east the lode is worth 9l. per fm. for copper; in the 90 fm. level west the lode is 2 ft. wide; but at present poor. In the 80 fm. level east the lode is worth 10l. per fm. for tin. The 142 fm. level east, on Highbarrow lode, is worth 35l. per fm. for tin. The stopes in the back of the 120 fm. level are worth 15l. per fm. for tin. On Martin's lode, in the bottom of the 120 fm. level, west of the engine-shaft, we are sinking a winze; the lode is worth 16l. per fm. for tin. Chapple's lode, in the 100 fm. level west, is 3 ft. wide, but at present poor. In the 90 fm. level west the lode is worth 12l. per fm. for copper. The 80 fm. level west is worth 5l. per fm. for copper. Dobree's lode, in the 58 fm. level, east of Chapple's lode, is worth 3l. per fm. for copper; in the rise, in the back of the 58 fm. level west, the lode is 20 in. wide, but poor. At Wheal Providence, the lode in the 33 fm. level east, is 2 ft. wide—promising, but not rich.

**TRENANCE.**—Mr. Richard Dalton (August 30) reports—The deep adit south continues very hard and wet, and the water is gradually sinking in the Maria winze. The 12 fm. level (Dalton's) south-west is very much improved, in the south end of which a piece of malleable copper, 2 in. thick, is making its appearance, which promises to be large and heavy. The deep adit north continues to improve, and the ore (which is in very small branches) is all over the end (yellow, grey, peacock, and black ores), which is about 3 ft. wide, and has been driven into about 3 fms. from the winze.

**TRELEIGH CONSOLS.**—Capt. W. Symons (August 25) reports—In Garden's shaft, below the 100, the lode is 3½ ft. wide, underlying north—rather more promising than it has been, but little ore; this is a lode come in from the south, not our main lode. In the 70, west of Garden's, the lode is about 1 ft. wide, with occasional stones of ore. The winze, below the 60 (new), is sunk about 3 fms. below this level; the lode is 2 ft. wide; it will produce a small quantity, not to value. In the 50, west of ditto, the lode is 4 ft. wide; we are driving on the north part of it, which is a little more promising, with stones of ore only. Wheal Pant engine-shaft, below the adit, is sinking in the country; this is nearly 8 fms. below the adit; the adit cross-cut, north of ditto, is intended to cut Wheal Orphan lode, but it has been driven many fathoms beyond the distance we had first calculated; the lode, east on middle lode, in the adit level, is 1 ft. wide, with stones of ore, which was cut in the adit driven north from the main lode to Wheal Pant 12 fms. only north; from the flat-rod shaft it has a north underlay, and which we suppose to be the lode they have at Wheal Mary, now a productive one.

**WEST WHEEL JEWEL.**—Captain T. Bray (August 28) reports—In the 70 fm. level, west of Williams's cross-course, on Wheal Jewel lode, the lode is 1 ft. wide, worth 4l. per fm. In the 57 fm. level, west of ditto, on the same lode, the lode is 2½ ft. wide, worth 8l. per fm.; in the 57 fm. level, east of ditto, on the same lode, the lode is producing stones of ore; in the rise, in the back of the 57 fm. level, west of ditto, on the same lode, the lode is 2½ ft. wide, worth 10l. per fm. In the 47 fm. level, west of ditto, on the same lode, the lode is 9 in. wide, worth 4l. per fm.; in the deep adit, west of Hodges's cross-course, on the same lode, the lode is 9 in. wide, unproductive. In the 30 fm. level, west of Quarry shaft, on Tolcarne tin lode, the lode is producing stones of tin; in the deep adit, west of Quarry shaft, on the same lode, no lode taken down in the past week. The stopes working by the tributaries, in the back of the 12 fm. level, east of Pryor's winze, are worth 30l. per fm.; the stopes, west of Pryor's winze, are worth 30l. per fm.; the stopes, in the bottom of the 12 fm. level, are working on tribute, worth 27l. per fm.

**WHIDDEN.**—Capt. John Kernick (August 29) reports—I have again set the counter shaft to sink at the former price (10l. per fm.)—sinking in the country; I do not anticipate any discovery till the said shaft is sunk to the points of intersection of the lodes referred to in my last report. The shallow level is driven on the great tin lode for several fathoms, in which space the lode is nearly filled with mudiic, and the adjacent strata running just as horizontally as the level itself; I have put the men to rise on the lode, to see it in another stratum.

**WHEEL MARY ANN.**—Capt. P. Clymo, jun. (August 28), reports—The lode in the 40 fm. level, south of Barratt's shaft, is 2½ ft. wide, and worth 6l. per fm.; the stopes, in the back of this level, are yielding a fair quantity of lead. The lode in the 30 fm. level, south of the shaft, is still in two parts; the western part, on which we are driving, is about 1 ft. wide, producing good stones of lead, with gossan and can; the stopes, in the back of this level, are producing a fair quantity of lead, but the ground is still hard. The plat, &c., at Pollard's, in the 40 fm. level, will be completed this week, after which we shall commence the cross-cut, to intersect the lode. The lode in the 30 fm. level, south of Pollard's shaft, is about 1½ ft. wide, and worth 6 cwt. of lead per fm.; the lode in the 30 fm. level north is 2½ ft. wide, producing good stones of lead, with gossan and can. The winze, sinking under the 15 fm. level, south of Pollard's shaft, is 7 fms. deep; the lode here is 1½ ft. wide, producing good stones of lead, can, and gossan.

**WHEEL TRELAWNY.**—Capt. John Bryant (August 29) reports—Phillips's shaft, sinking under the 62 fathom level, is without any material change. The lode in the 62 fm. level north is 3 ft. wide, composed of hornspar, mudiic, can, and lead, worth 10l. per fm.; the lode in the south end, in this level, is small at present, producing stones of lead; the stopes, in the back of this level, are looking well. The lode in the 52 fm. level north is 2 feet wide, composed of can and lead, worth 7l. per fm.; the lode in the south end, in this level, is small and poor; the stopes, in the back of this level, are much the same as last reported. The lode in the 42 fm. level, north of Trelawny's shaft, is 2 ft. wide, chiefly composed of can, with lead throughout, and worth 8l. per fm.; the lode in the rise is worth 10l. per fm.; the stopes, in the back of this level, are improved since my last. The lode in the 52 fm. level, north and south of Trelawny's shaft, is large, and worth 5l. per fm. The 22 cross-cut, east of this shaft, is still in driving by four men, and without alteration; the lead raised by our tributaries last month, in the back of the 22, fully equals our expectations, and we have now seven pitches working, varying in tribute from 2l. to 5l. 5s. per ton, for raising the ore. At the north mine, the lode in the 30, north of Smith's shaft, is producing good stones of ore; about 10 fms. north of this shaft we have commenced driving a cross-cut west, with a view of cutting a branch disordered in the shaft, underlying west; I expect to prove this by driving about 6 fathoms; the winze, south of this shaft, and near Treham boundary, is sunk about 4 fathoms under the 30, but, in consequence of water, cannot go any deeper at present.

**WHEEL VINCENT.**—Capt. Spargo (August 30) reports—In driving the cross-cut, to cut the south lode, we have intersected two branches, underlying south; each carries tin, and are sprung off from the lode before us, which evidently shows that the lode will be found productive; if the ground continues favourable, as at present, we shall cut it in about six weeks. We are getting our stamps in order for stamping tin, as we are certain we shall drain all the old workings as soon as we cut the lode, when we shall commence breaking tin. In driving the deep adit, on the course of the north lode, we are frequently breaking some spots of copper, mixed with mudiic and fluor-spar. We intend to fix flat-rods from our present wheel to the engine-shaft, so as to cross-cut the lodes in the 20 fm. level.

## FOREIGN MINES.

**ASTURIAN MINES.**—The following is an extract of a letter, from Mr. Lambert, the manager of the works in Mieres, dated August 18:—"I have the greatest pleasure in requesting you to lay before the board the enclosed copy and translation of a document I received two days ago, evincing the spirit which is entertained by her Majesty the Queen towards this establishment. This document, totally unsought for by me, has afforded me much satisfaction; and I have no doubt you will participate in my feelings regarding it. Such things are unknown in England; but here, where everything is nascent, a powerful influence is effected by a word from the Crown; and I must assure you that, although local inconvenience has occurred upon one or two occasions, I have always found the superior authorities disposed to give me every assistance individually, and to protect the interests of the company. I maintain the best relations with them in every sense."—*Aviles, Aug. 18.*—"When I had, in the end of June last, the high gratification of inspecting the interesting iron-works which you manage in a manner so satisfactory, I addressed a report to the Direction General of Mines, with details of the establishment, comprising its resources, workshops, &c., together with my opinion regarding the scientific, mechanical, and economical management under which the whole is conducted; and the Direction General having presented my report to Government, have ordered me to communicate to you that her Majesty the Queen, persuaded of the important influence towards general prosperity, and the advancement of industry, created by such establishments, has been pleased to manifest by Royal order, of 29th July last, the high consideration in which she holds them, and that she is inclined to favour that good government, in order to its rapid development and success; and, in the name of the Direction General of Mines, I have the honour of so informing you for your satisfaction."—*WILLIAM SCHULTZ:* Government Inspector of Mines in the Asturias.

## REAL DEL MONTE MINING COMPANY.

A special general meeting of proprietors was held at the offices, Duker-street, Adelphi, on Monday last, the 28th August, for the purpose of communicating with the shareholders as to the disposal of the concern, under the resolution passed at the late annual meeting, held on the 28th June, and as to the probability of obtaining purchasers in this country, and generally to adopt such steps as may appear advisable.

Sir ROBERT PRICE, Bart., in the chair.

The advertisement convening the meeting having been read, the CHAIRMAN rose and observed, that, perhaps, the best thing to be done would be to read the report, which would lay before the proprietors the changes which had taken place since the last general meeting in the company, and the present position of it.

The following report (or, rather, a summary statement of the position in which the company had been placed for the last two months, and of their present situation) was then read by Mr. Phillips, the secretary:—

The report presented to the annual meeting on the 28th June last, acquainted the proprietors with the unfavourable state of the company's affairs, owing to the losses and difficulties to which they were exposed. Two months' dispatches have since been received from Mr. Buchan, in which he informs the directors of the steps he had taken for the preservation of the concern, but that all his exertions had been ineffectual to bring the expenditure within the returns. In his last letter, dated 12th July, he intimates that he has done all in his power to enforce economy in every branch of the establishment, and that the expenses have been somewhat diminished; but, on the other hand, he regrets to state, that the value of the produce has been so much less, that the weekly loss cannot be estimated at less than £2000.

Mr. Buchan appears, however, to think that, with an application of capital to the opening of the mines, for the better extraction of a larger quantity of ore, and to the extension of the hacienda power for its reduction, the concern might be made profitable; but that he finds it perfectly impossible, by the aid of its own resources alone, and without further capital, to bring the expenditure within the produce.

Seeing the impossibility of paying costs in the present position of the concern, he intimates that, with the minute of the board before him, he should not hesitate for one moment in suspending the drainage, and gradually closing the concern, were it not for the very tempting prospect of help from the San Pablo bottoms; and that this trial, if a little longer persevered in, might possibly extricate the negotiation from its present difficulties. "Should (he says) we be so fortunate as to soon cut the Bucanilla in the mine, and, in doing this, find that vein sufficiently porous to drain the water from Santa Teresa level, we may be in 'bonanza' in less than a month; but, if not thus found, it will take at least two or three months before we can commence sinking under the Santa Teresa level, and derive any assistance from our supposed discovery of ore at this point."

As the point above-mentioned is one of the deepest in the mines, the directors do not infer from Mr. Buchan's statement that he expects more from it than that it may enable him to liquidate the debts, and to make such alterations in the concern as are required for carrying it on without loss. In this respect alone, however, such a discovery would be very opportune, while it would show that the mines are by no means exhausted, even in depth, but only require a more powerful and constant means of drainage.

Mr. Buchan, in alluding to what might be done with new capital, says, the shafts should be deepened—the lower workings on the Santa Brigida properly laid open (which would require a year of nearly dead work)—haciendas must be reformed; but above all, and in preference to further trials in depth, which should stand over until, at some future day, the Avadero adit is brought home; he recommends the trial of the Bucanilla, on both extremes of that portion of ground to which the company have almost entirely limited its examination of this vein. Mr. Buchan goes on to say, that the trial under the former rich formations of San Ramon and La Palma holds out great promise; and, still further east, the vein, though apparently much worked at the surface in former times, has never yet been tried in depth. Westward, after leaving San Francisco, there is also every reason to believe that the Tapana, and, next the Bucanilla, is the vein worked; so that, in this direction also, there is a great field for discovery.

The debt in Mexico, however, now amounts to upwards of \$80,000, and a large sum is owing to the loan and debenture holders. Under these circumstances, the directors are of opinion, that the most prudent course is to endeavour to dispose of the concern to parties either in Mexico or in England. There are many reasons to believe, that considerable profits might accrue upon the comparatively moderate capital which a new proprietor would have to advance. Mr. Buchan shows that Real del Monte offers an ample field for mining, independently of the mines already opened. A new proprietor might direct a portion of its capital to the trials indicated; they would have all the advantages of the experience gained at great cost. The essential article of quicksilver is reduced in price from 4s. 6d. to 3s. 6d. per lb., and buildings and machinery of all kinds are on the spot. These are the grounds of encouragement for a new company; and, before any decisive vote be proposed to the shareholders for the dissolution of the present concern, the directors are anxious to ascertain whether there are any parties disposed to offer arrangements for carrying it on.

The CHAIRMAN then said, that he did not know whether any information could be added to that furnished by the report. It was a calamitous circumstance—and the directors felt it most strongly—that at a time when the mine itself held out great promises of success in working, no way was discovered of carrying it on in conjunction with the present proprietary. The affair had been so long before the public, capital had been so frequently raised, and a compulsory preference given to different parties, that it was now deemed totally impossible to propose any plan for raising new capital. He was not about to say that it might not still be productive; but the direction, seeing no immediate mode of realising the expectation of the proprietors, had considered it expedient, if possible, to dispose of the concern, and out of the proceeds liquidate the company's claims with the loan-note holders.

A SHAREHOLDER: As far as it would go for that purpose?—The CHAIRMAN: That would be a question upon the amount raised. It would be the only plan that he thought could be adopted for the purpose of getting rid of all prior claims upon the company itself. The meeting had been convened for the purpose of consultation with the shareholders as to the propriety of sale, or to give gentlemen in London an opportunity of forming a new company, if deemed desirable. It would require but a moderate amount of capital to carry on a concern which still held out great prospects of becoming available.

Mr. HEATH: To what amount were the company indebted to the loan-note holders?—Mr. PHILLIPS: About 135,000*l.*; with interest, 450,000*l.*

The CHAIRMAN: It would be impossible to pay them off entirely by any sum the concern might raise. The amount of assets, not including engines, which were very valuable property, was according to the last returns from Mexico, about 80,000*l.* Debts, however, in that place, had been contracted to the amount of 16,000*l.*

A PROPRIETOR thought, before Mr. Heath's question was replied to, it would be necessary to have a detailed account of all the assets.—Mr. PHILLIPS: That account could be furnished even to the minutest particular.

A PROPRIETOR: What was estimated as the value of the engines?—The CHAIRMAN: They were valued at a large sum; but, believing it to be difficult to find a market for them, they were not included in the inventory. They would, however, form a very considerable item of expense.

Mr. HEATH had heard with some reluctance the observations of the chairman, with respect to the necessity of an immediate sale and the abandonment of the concern. He was not altogether disposed to agree with him. He thought that among the shareholders some might be found who would be disposed to take the concern out of the hands of the directors, and continue working it. He did not anticipate that it was the particular desire of the directors to see the shares sold, and the whole concern thus broken up.

The CHAIRMAN repeated his observations, as to the absolute necessity of a *bona fide* sale; but remarked that, of course, it was open to the meeting to adopt whatever steps were deemed most expedient, remembering that they were bound to give a preference in favour of the bondholders.

Mr. HEATH said, that a sum, to the amount of 440,000*l.* had been raised by shares; and it appeared, from the remarks of the chairman, that the interest of the loan-note holders alone was to be considered. This seemed to him to be a partial and a one-sided movement.—A DIRECTOR: Not if all interested came forward upon one mutual principle.

Mr. HEATH thought, that the condition of the company was not so desperate as at first glance it appeared. He believed the whole plan might, with propriety, be remodelled, by taking the price of the red and black scrip in the market. There were at present 29,500 shares; and, taking those at 10s. per share, an amount might be raised equal to 14,750*l.* By the red scrip holders taking up 10 shares each, and giving up their debentures—the black scrip holders taking up six shares each, and giving up their debentures, and the scrip holders coming forward to take up their share allotments—a capital would be raised equal to 27,000*l.* and odd, which sum, he considered, sufficiently necessary to carry on the concern.

Mr. HORACE TWISS said, it was not suggested that the loan-note holders were calling upon the company to sell up the concern, in order that they might profit by the price realised on its purchase. Such a sale, if it was deemed desirable, would take effect for the sake of the proprietors. They were in a condition to have upon their hands a mine which might be very valuable; but which was incumbered by a very considerable amount of debt. The loan-note holders were not at all responsible for the payment of that debt—the shareholders were alone responsible for it; and for its liquidation every shareholder of the company was liable to be summoned to the full extent of the property he possessed. Now, it would be necessary to find money for paying off the subsisting debt, and then proceed to the working of the concern, or else they must find the means of extricating themselves from their present cumbrous responsibility. Between these two courses their plan laid. It was, however, in vain to hope that any fresh capital could be created by the ordinary resource of placing a higher value upon the shares than now existed, and, by this means, to hope to carry on the concern. The only, and the most advantageous course, would be to part with it in the best market. It might, certainly, be that

amongst the proprietary some individuals might be ready to engage in the present concern—persons who might be inclined to raise new capital, and carry it on; but it was out of all expectation that the present body could promise to themselves success in the undertaking. The loan-note holders had the full power to say to the company, "Do not tell us about the equitable arrangements between yourselves; we have a legal claim over you." It was not, therefore, for the meeting to lament over the expenditure, but rather to look to the present difficulties, and the best method of extricating themselves. That method he believed to be the one proposed—namely: to wind up the concern, to pay off those persons who had a prior claim upon it, because they could not help paying them off whether they would or not, and then to relieve themselves as well as they could from the onus and responsibility which at present rested upon them—a responsibility which came at the back of a loss, and which was heavier to sustain than loss itself. (Hear, hear.)

The CHAIRMAN said, he thought it was not necessary to come to an immediate decision, but since the concern was actually losing at the rate of £2000 weekly, it was desirable that some decisive arrangement should very shortly take place.

Mr. H. TWISS again urged the necessity of an immediate settlement of affairs. The market was at present open for some such purchase as that under discussion to take place, and every day's loss rendered it the more unlikely that the question would be entertained.

Mr. BURNAND, having reference to the object of the board in convening the meeting, said he was sure that the directors did not intend to hurry matters over. He trusted that an opportunity would be afforded for reconsidering the object in view—the sale of the concern, or its continuance under different arrangements.

A DIRECTOR: But it was not a thing which admitted of delay. There might be a rich course of ore announced by the next packet; but unless some improvement was observed day after day, matters would gradually go on, until the mine became unsaleable. The bargain, when made, would necessarily be a conditional one, in consequence of that circumstance.

Mr. HEATH: At least, as you have communicated with the parties in Mexico, would it not be advisable to wait their reply? Funds are amply sufficient for that purpose, even at the rate of consuming £2000 weekly. Have the loan-note holders a legal preference?—Mr. H. TWISS: Oh, yes.—The CHAIRMAN: Counsel's opinion has been taken upon that point.—Mr. W. R. A. BOYLE rose to order. He submitted that that question could not properly be brought before the chair.—The CHAIRMAN stated, in reply to Mr. Heath, that the opinion of his honour the Vice-Chancellor (Knight Bruce) and Jacob and Sutton Sharpe, Esqrs., had been taken on the subject of the claims of the loan-note holders.—Mr. HEATH: The opinion depends on the way in which a case is put. The loanholders ought to be prepared to submit to an equitable proposition. Would it not be proper to communicate with the manager of Mexico to the effect, that if he unexpectedly met with some good fortune, he might continue working; and, if otherwise, then that he should cease altogether?—Mr. PHILLIPS: That has been done; but the working of the mines would stop of itself, if funds were not raised to carry it on. How to procure these funds became an important question; for lately the workings had been carried on by borrowed money.

After a desultory conversation, as to the propriety of adjourning the present meeting for a month, for the purpose of affording time for further consideration, Mr. BURNAND proposed—"That this meeting be adjourned to the 25th of September, and, in the meantime, a detailed statement of the assets of the Real del Monte Company be furnished to each proprietor, and any offers submitted that in the meantime shall be made to purchase the concern."—The proposition was seconded by Mr. Heath.

Mr. H. TWISS thought the latter clause of the proposition not in accordance with the object of the meeting. He appealed to Mr. Phillips, whether the books of the company were not always open for inspection; and observed, that any scheme, for the purpose of carrying on the concern under its present arrangements and proprietary, would terminate in a total failure.

A PROPRIETOR asked, if the directors had the full power to sell?—Mr. H. TWISS: A sale might be made by consent.

The CHAIRMAN here read the proposition of the hon. proprietor, and said that the finishing clauses could not properly be submitted, when Mr. BURNAND consented to their withdrawal.

Mr. W. R. A. BOYLE said, it would be very bad policy to force the shareholders and the note-holders to antagonistic principles. The company was willing and glad to take the loan-note holders' money when it was required, and now that they were involved in difficulty, it would be better to meet them in an amicable spirit. There were 30,000 shares, and 3500 registered shareholders. If every shareholder would agree to subscribe 2*l.* upon their shares, that would raise a sum of 60,000*l.*; then, with the assets in hand, the loan-note holders' claims might be liquidated, they having still their priority over the shareholders.

Mr. H. TWISS: But the shareholders would not agree to that.

Mr. W. R. A. BOYLE: Let the direction call a meeting, to consider that question; then, having raised the 60,000*l.*, the shareholders, upon that sum, would have a priority over the loan-note holders to that amount. With respect to the disagreement likely to be evinced by the loan-note holders to that proposition, they must remember, that if the concern was put an end to by sale, they must of necessity be losers; and the question, therefore, for them to consider would be this—if other parties would come forward, and subscribe the capital necessary to carry on the concern, would there not, in all probability, soon appear an improvement? and would they not be likely to realise a much larger sum than they anticipated at present? By this proposition, the shareholders were running the trifling risk of 1*l.* upon each of their shares, with the probability of ultimate success and advantage to the whole concern.—Mr. BURNAND: I am afraid you would find them too refractory. (Laughter.)—Mr. W. R. A. BOYLE begged to propose some arrangement as that to which he had referred.—A PROPRIETOR: Unless you are a registered shareholder you cannot put the resolution.—Mr. W. R. A. BOYLE: No, I am not.

The proposition, although drawn up, was, consequently, not put. After some further discussion, it was agreed that the meeting be adjourned to Monday, the 25th of Sept., at one o'clock, and that the propriety of taking immediate steps for the sale of the property be then considered.—A vote of thanks was moved to the chairman by Mr. Boyle, which, having been most politely acknowledged, the meeting separated.

## NATIONAL BRAZILIAN MINING ASSOCIATION.

The adjourned special meeting of proprietors was held at the London Tavern, on Monday last, the 28th August, for the purpose of further considering the report of a committee appointed to inquire into the state of the company's affairs, and also to decide upon what steps should be taken, in order to promote the general interests of the association.

Mr. Deputy T. CORNEY in the chair.

The CHAIRMAN, in opening the proceedings, briefly explained that at their last meeting the report which the committee had presented had only been partially taken into consideration, the shareholders having decided that it should then only be received and entered on the minutes. A resolution was also passed, determining that an annual report should be laid before the shareholders in the month of May in each year. Several minor points referred to in the report were left open for consideration, and those matters would be taken up by the shareholders, in the order they might consider most convenient. He should mention that, since their last meeting the committee had been in communication with Mr. Collett, with a view of harmonising, if possible, the conflicting points of dispute between that gentleman and the existing board; and, in consequence of such communication, the committee had to recommend certain addenda to their report. The first paragraph which he would read referred to the obligations which the shareholders considered themselves under to Mr. Collett, for his exertions on their behalf with a view of improving their property, and requesting that gentleman's acceptance of 500*l.*, inclusive of the sum of 150*l.* already advanced to him in payment of expenses incurred in their behalf. In contemplation of Mr. Collett's expressed intention of passing the greater part of the next six months in Ireland, it was understood that Mr. Hartley would fill his place in the direction. Messrs. Reid and Irving, with a view to give unity to the exertions of the acting-directors of the company, had also consented to retire from the board, and a paragraph, recording the deep sense which the shareholders entertained of their services, was also proposed to be added to the report. The committee recommended, therefore, that such addenda should be received, and that formal resolutions should be passed, for the purpose of giving effect to the same. In reference to the arrangement with Mr. Collett, he might explain that the measures the committee had thus recommended were in the fullest sense conciliatory, and that, as a mode of payment, Mr. Collett, who had no desire to press upon the funds of the company, had consented to take 50 of the 939 shares referred to in the report of the committee, of which

the directors became the purchasers in July, 1847, at 4*l.* a share. This would be equal to 200*l.* Then a sum of 50*l.*, which was drawn on the agent of the company at Brazil, was to be discharged by the company, so that 100*l.* would be the total advance which the company would be called upon to make, in satisfaction of the 500*l.*, and this sum it was not necessary to provide for immediately.—Separate resolutions relative to the directors, as recommended, were then carried unanimously.

Mr. COLLETT, in acknowledging the compliment of the shareholders in this public testimonial of their satisfaction with his exertions, was happy to know that the prospects of the mine were rapidly improving; but he must be permitted to repeat, that this improving condition was due to himself, and to him alone. He was quite satisfied that now the rainy season was approaching, the old system might be continued, but he was equally sure, that when the shareholders met again in May, his (Mr. Collett's) system must and would be adopted. He thanked them for the sum which they had by resolution voted to him, although not equal to his expenses. Mr. Collett concluded, by stating his intention of offering himself as a director in May next.—Mr. HAMILTON would not enter into discussion, but desired to state, that he could not accord with the statements made by Mr. Collett.

Mr. OCKENFORD was anxious simply to state, that he was prejudiced in favour of no one system in particular. The most experienced miners had been engaged, and there was every prospect of their labours being ultimately crowned with success.

Mr. IRVING returned thanks for the public expression of the satisfaction of the shareholders with the exertions of himself and Mr. Reid. Messrs. Corney and Greenaway were then, on the motion of Mr. COLLETT, seconded by Mr. KEMBLE, chosen auditors until May next.

The recommendation of the committee on the subject of the proposed call upon the marked and unmarked shares (for which see the report of the committee in last week's *Mining Journal*), was then brought under discussion, and ultimately a resolution was passed, requiring the holders of marked and unmarked shares, without distinction, to pay a call of 4*l.* per share, in instalments of 1*l.* each.—A resolution was then passed, for the purpose of confirming, or perfecting, the sale of the 939 shares in July, 1847, a confirmation supposed to be necessary, from the call not having previously received the sanction of the proprietors.—Votes of thanks to the committee for their exertions, and to the directors and other gentlemen connected with the recent movement, closed the business of the day.

## SOUTH AUSTRALIAN MINING ASSOCIATION.—(BURRA BURRA.)

At the general annual meeting of shareholders, held at the offices of the company, Rundle-street, Adelaide, the 19th day of April, CHARLES BECK, Esq., in the chair.

The following report and accounts were submitted by the directors to, and approved by, the meeting, and ordered to be printed:—

REPORT.  
It is with extreme satisfaction that the directors meet the proprietors with their third annual report, particularly as they are enabled to state to them, that, however flattering the affairs of the association have hitherto proved, they have at no time equalled the prospects of the present period. By the annexed return of ore, it will appear that the quantity raised during the last six months was 6068 tons; but it is to be observed, that, during the summer half-year, the loss of a month is occasioned by the Christmas holidays, which will account for the apparent decrease, when compared with the former six months' work. The total raisings for the past year was 13,533 tons. The quantity carted to the port, during the last six months, was 9310 tons, averaging 354 tons per week—the largest quantity carried in one week being 527 tons. The general appearance of the mine is very encouraging; the large raisings of the last year having been produced from within the limits of the 20 fm. level; all the ore discovered below that, to the 30 fm. level, is left for future raising, there being plenty of good ore ground above the 20 fm. level to employ the hands for some time to come. The ore produced continues of good quality, consisting of carbonates and oxides.

On the 31st March last, the establishment at the mine consisted of eight officers, a surgeon, and the following miners, mechanics, and labourers—viz., 223 miners, 35 mine-mechanics, 2 timber men, 8 mining labourers, 7 landers, 60 surface labourers, 123 ore dressers, 50 boys dressing and picking ore, 14 carpenters, 5 blacksmiths, 5 barbers, 4 sawyers, 2 maons, 13 carters and stablesmen, and 7 boys, horse-whip drivers.—Total, 567.

Since the last meeting, advices have been received of the sale of 3122 tons of ore—averaging 23*l.* 8*l.* 7*l.* per ton; the highest price being 32*l.* 13*l.*, and the lowest 15*l.*; the last 256 tons produced an average of 28*l.* 15*l.* 7*l.*, being 9*l.* 2*l.* 4*l.* per ton more than the average of the 947 tons reported as sold at the last meeting, and exceeding the average price of the 890 tons reported at the meeting in April last, by 12*l.* 18*l.* 7*l.* per ton. And the directors feel much pleasure in assuring the proprietors, that they are of opinion that the ore shipped this season, and that yet to ship, will fully realise the highest average above-mentioned. The directors have caused a return of the dividends declared and paid during the past nine months (amounting to 73,920*l.*) to be prepared, and annexed to this report; and they are desirous, if circumstances will admit, of making the dividends uniform in amount, and paying them on fixed days. To this end, the directors propose (while the present prospects of the mine continue) paying dividends of 200 per cent. on the capital stock on the first day of every third month.

The directors refer to the annexed balance-sheet, which shows the cash transactions of the association since the last balancing, 30th April, 1846, to the present period. In explanation of the item, "sundry creditors, 35,310*l.*," the directors have to observe, that from this amount must be deducted the amount of bills receivable, sundry debtors, and cash in hand, on the other side, amounting to 10,755*l.*, which would reduce the liability to 24,555*l.*; this amount has been incurred in part payment of wages on the ore at the mine, and the wages and cartage on the ore now at Port Adelaide, and on which the usual drafts have not been made; but, on its shipment, the directors will be in funds sufficient to relieve the liability, and possess a balance of 34,000*l.*, exclusive of large remittances expected during the next two months.

The directors have much pleasure in stating, that the net proceeds expected on the ore shipped, to the period of making up the statement of the company's liabilities and assets, in Sept. last, as far as yet ascertained, has exceeded the amount therein estimated. At the next meeting, the directors will submit a similar statement of the liabilities and assets of the company as that produced at the last meeting, and have no doubt it will prove equally satisfactory.

The return of ore, the produce of the Burra Burra Mines, showed—On hand, Sept. 30, 8251 tons 20 cwt.; raised since, 6068 tons 12 cwt. 1 qr.—14,320 tons 11 cwt. 1 qr.—Sold at Adelaide, 2528 tons 19 cwt. 3 qrs. 25 lbs.; shipped for sale, 3104 tons 18 cwt. 3 qrs. 8 lbs.—leaving on hand, 8686 tons 14 cwt. 1 qr. 23 lbs.—The return of dividends showed—Five declared in nine months; of two 50*l.*, one 100, two 200—making 600 per cent. on the capital stock of the company.—Total amount, 73,920*l.*

Cash Balance-Sheet, from 30th April, 1846, to the 31st March, 1848.

Profit and loss	£7,606 16 3
Capital stock	12,320 0 0
Rent of land and buildings	266 0 2
Sale of ore	83,106 10 5
Drafts against 5341 tons of ore, shipped to England for sale	69,441 0 7
Unclaimed dividends—first 107 <i>l.</i> 10 <i>l.</i> ; second, 107 <i>l.</i> 10 <i>l.</i>	215 0 0
Sum received on transfers, &c.	45 5 0
Sundry creditors	35,310 7 3
Total	£211,306 19 8

Landed property, with improvements	£15,718 12 3
Wages and sundry accounts connected with the working of the Burra Burra Mines, including timber, bags, fixed machinery, horses, tools, implements, &c.	74,030 2 6
Cartage of ore and cartage on the ore now at Port Adelaide, and on which the usual drafts have not been made	44,803 10 7
Charges, being expenses of establishment, officers' salaries, &c.	3,566 19 11
Discount and interest	3,047 0 2
Shipping expenses and port agency	2,944 7 8
Office furniture	186 8 1
Third dividend—in part payment of £12,320	12,095 0 0
Fourth ditto	24,640 0 0
Fifth ditto	24,640 0 0
Sundry debtors	712 18 7
Bills receivable	9,840 0 0
Cash in hand	202 19 11
Total	£211,306 19 8

PRINCESS ROYAL MINE.—The third half-yearly meeting of shareholders was held at their office in Rundle-street, when the periodical reports of the directors and auditors, and those of the managing and the inspecting captain were duly submitted, and Mr. John Grainger unanimously elected to fill the vacancy in the direction, consequent upon the retirement of Mr. Shepherd. The original capital of the company, 14,800*l.*; the proceeds and bills drawn against 897 tons of ore sold, shipped, or in course of shipment, 3854*l.* 7*l.*; fees, 43*l.* 10*l.*; and sundry creditors, 183*l.* 16*l.* 3*l.*—18,891*l.* 13*l.* 3*l.*, which is thus accounted for:—Cost of land and preliminary expenses, 13,443*l.* 15*l.* 2*l.*; cash and other available funds in hand, 534*l.* 17*l.* 3*l.*; the working and establishment expenses, materials, &c., 4903*l.* 0*l.* 10*l.*—18,891*l.* 13*l.* 3*l.*. The available assets comprise the above balance of 534*l.* 17*l.* 3*l.*; and proceeds of intended drafts against shipments or returns expected, 1880*l.*—2414*l.* 17*l.* 3*l.*. The liabilities are only 510*l.* 18*l.* 6*l.*, and a clear balance of 1904*l.* 3*l.* 9*l.*, may, therefore, be calculated on for the prosecution of the works, which had been satisfactorily reported on by Capt. Bath, subsequent to Capt. Richards's report, dated March 18, 1847. The directors have met with no sufficient inducement to lease for pasturage the unoccupied portions of their 10,000 acres, but a proposal to rent a few acres for a market garden had been agreed to, and it was intimated that other applications of a similar kind would be favourably entertained. From Capt. Richards's report, it appears that two pitches set upon tribute at a part of the mine known as Baxter's lode, had averaged about 12 tons per month for the preceding six months, at a tribute varying from 60*l.* to 80*l.* per ton; and that, during the same period, about 16 tons had been raised from different parts of the mine, at a tribute of 4*l.* per ton. Various intersections of the "meander lode" have been made, and its width has been found to vary at the different points of intersection from 1 to 80 fms. Many managing captains have a great reluctance to entertain such a ratio of tribute as 60*l.* to 80*l.* per ton under any circumstances; but, we regard it as a proof of Capt. Richards's discernment, that he has not hesitated, wherever practicable, to hold out to the working miner, a

## MINING IN NORTH WALES.

## CORNISH STEAM-ENGINES.

[Abstract from the Cornish Engine Reporter, No. 18, for July, 1848.]

PUMPING-ENGINES.	
Number reported	24
Average load per square inch on the piston, in lbs.	11.4
Average number of strokes per minute	4.8
Gallons of water drawn per minute	3,980
Average duty—being million lbs. lifted 1 foot high, by the consumption of 1 cwt. of coal	740.1
Actual horse-power employed per minute	89.5
Average consumption of coals per horse-power per hour, in lbs.	4.1

ROTARY-ENGINES—WHIMS.	
Number reported	18
Number of kiddles drawn	66,163
Average depth of drawing, in fathoms	135.6
Average number of horse-whim kiddles drawn the average depth, by consuming 1 cwt. of coals	45.7
Average duty, as above	12.1

STAMPS.	
Number reported	6
Average number of strokes per minute	14.0
Average duty, as above	33.0
Horse-power employed	90.1

PUMPING-ENGINES DOING HIGHEST DUTY.	
Far Consols	72 & 36-inch Sims's combined
Great Polgoth	80-inch single
Callington	80-inch single
Callington	80-inch single
Callington	80-inch single
Trelawny	50-inch single

WHIM-ENGINES.	
Far Consols	24 & 13-inch Sims's combined
Far Consols	22-inch double
Callington	22-inch double
Callington	22-inch double
Callington	22-inch double
Callington	22-inch double

STAMPS—ENGINES.	
Tamar	36-inch single
Great Polgoth	25-inch double
Trecroft	36-inch double

**PEAT CHARCOAL.**—We have received from Mr. Wilkins, of the Dartmoor Forest Charcoal-Works, South Brent, Devonshire, a specimen of peat charcoal, manufactured there. That gentleman states, that for manufacturing iron in complex forms, it is a fuel unrivalled, being entirely free from sulphur, and its calorific effect three times greater than coal, and double the power of wood charcoal. As a steam generator it is equally valuable, leaving no residue, and emitting little or no smoke. For smelting ores, tempering steel, and giving ductility to copper and tin, it has been proved of the utmost importance. We understand that several large and influential companies, now forming, contemplate converting the native ores of Devon on the spot, instead of, as heretofore, exporting them to the Principality and Staffordshire. This peat charcoal can be produced at a price considerably less than half that of wood charcoal.

**LIGHTNING CONDUCTORS.**—The following motion was made by Mr. Hume, in the House of Commons, last night—to ascertain the total expense of fitting the ships of her Majesty's navy with lightning conductors, the description of conductor used in each ship, and the cost of each description of conductor; also, the total amount expended in experimenting upon conductors; also, copies of all reports made to the Admiralty, on their efficiency. We learn, on good authority, that a large sum of money has been expended on the lightning conductors used by her Majesty's Government (those of Sir William Snow Harris)—indeed, if we are correctly informed, upwards of 100,000l. has been spent in trials and experiments, in fitting up ships with them. The inquiry will, doubtless, lead to an *exposé* as to the "job," it being notorious that none of the patronised conductors have been adopted, or are in use, with the mercantile marine, the latter having applied Smith's patent copper wire-rope, which effects the object perfectly, at about one-eighth the cost. If such be the case, there cannot be a doubt but that the inquiry will be attended with beneficial results, and it is to be hoped, be a saving to the country.

**THE COST-BOOK SYSTEM.**—VICE-WARDEN'S COURT.—CARDOSO V. ROSCROW. —This was a case in which the plaintiff, relinquishing shares, sued for his estimated proportion of materials. The proceeding occupied the whole of Thursday and Friday, and his Honour postponed judgment until Tuesday next; he, however, decided at once on the following points:—1. That Roscrow had been properly made defendant. 2. That the buyers of the machinery were not to be joined as defendants, the suit pending being sufficient notice to them. 3. That the plaintiff, though an adventurer, might properly sue as a mining creditor. 4. That the evidence, on the part of the defence, that the plaintiff was not entitled to sue in equity, because he had improperly disposed of the old set, was vague and inconclusive, that his Honour could place no reliance on it.

**MINERAL RESOURCES OF TURKEY.**—The following information was extracted, by the *Swansea Herald*, from a communication addressed by a mining engineer, in the service of the Turkish Government, to a friend at Swansea, dated, Constantinople, July 16:—"I have just received a paper, in which it is stated, that a vein of coal has been discovered on the Dardanelles. I am happy to inform you, that no less than seven veins have already been found, of various qualities and various thicknesses, of from 2½ to 5 feet. On the Asiatic coast of the Marmora, about 30 miles from the Dardanelles, are three veins of steam-coal, similar to Graigol, and not so strong as Mr. Webb's St. Georges, nor so good in the grain. Twenty miles further east, and 12 miles inland, I have discovered four more, one of which is good bituminous clear coal, cokes very well, and the other three are very good steam-coal, exactly similar to St. Georges; and within 2 ft. of one of them, I have found the black-band ironstone, 9 in. thick. Turkey abounds in minerals, gold, silver, lead, tin, copper, iron, &c. In the Island of Mytilene, I discovered a vein of iron mine, about 8 ft. thick, mild mine, and 42½ per cent. iron from the raw ore. At present we are working the iron on one of the Prince's Islands, where it is in abundance, and very rich. There are also considerable mines of coal, both free and bituminous, as well as lignite, on the shores of the Black Sea; the lignite is on the European side of the Bosphorus and on the other—on the Asiatic—and belongs to the Sultana mother and one of the Pachas; it is worked to some extent. I expect to go there in a few days, and before you receive this, I will probably be located, for a time, amongst the Asiatics, on the shores of the Black Sea, subject to be pounced upon, at a moment's notice, by the Imperial Russian bears; in fact, as matters are at present, I may in one day be transferred from the service of the sublime Porte to that of Russia—*n'importe*."

**THE HIGH LEVEL BRIDGE AT NEWCASTLE.**—The long expected opening of this magnificent bridge—an event of such interest to railway enterprise and the trade of Newcastle—took place on Tuesday last. About half-past two, P.M., a train, consisting of an engine and tender, luggage van, and nine carriages, crowded with passengers, passed slowly over the bridge amidst the sound of music, waving of flags, and firing of artillery. Having arrived in safety at the station of the North Shields Railway, the party proceeded to the Queen's Head Inn, where they were entertained at dinner by S. Lowrey, Esq., Mayor of Newcastle. Yesterday, a dinner was to be provided for the workmen to the number of about 1400.

**GREAT WESTERN DOCKS, PLYMOUTH.**—These docks are being proceeded with rapidly, and, when completed according to the design, will furnish accommodation superior to that afforded by any other docks of similar extent. The inner basin, or floating dock, will be capable of containing and affording ample wharfage for 12 steamers of the largest size, a number, we believe, equal to that accommodated by the great basin at Portsmouth, recently opened. There will be two entrances to this basin: one will admit merchantmen of the largest size, and steam-boats of ordinary dimensions, for two or three hours before and after high water—through the other the largest screw steamer can pass at high water. The area of the outer basin will be nearly 30 acres. If this basin should be deepened to the extent proposed, vessels can enter and be aloft in it at all times of the tide without the delay of passing through a lock. This is an advantage not possessed by Liverpool, and many other ports. The entire extent of wharfage will exceed a mile, and the area of ground for stores is adequate to the greatest possible trade.—*Devonport Chronicle*.

**BAROMETER WITHOUT FLUID OR MERCURY.**—There is now at the establishment of Mr. Abraham, in Lord-street, a simple, beautiful, and accurate indicator of atmospheric changes on an entirely new principle. It is termed by its inventor, a French gentleman, the Aneroid Barometer. It is of the size of a ship's chronometer, with a circular scale, and divided and engraved similar to the ordinary wheel-barometer. The instrument is so extremely sensitive, that the height of a building is indicated by it; and, exclusive of the advantages of extreme accuracy and portability, it cannot be deranged by travelling, and will prove a valuable companion to the scientific traveller. As the motion of a ship cannot affect it, it is equally suitable for nautical purposes; and, being of an ornamental form, it is admirably adapted for the hall, library, or drawing-room. Prof. Lloyd, at the recent meeting of the British Association, reported that the indications of the Aneroid had been tested by placing it under the receiver of an air-pump, and observing its action in comparison with the indications of the long-gauge, they were found to agree to less than 1-100th of an inch. The mechanical arrangement of the instrument consists of a cylindrical chamber of copper, about 2½ in. diameter, and about 5-16ths of an inch deep, exhausted of air, and hermetically sealed. The surface of the chamber is corrugated, and with every variation of the atmosphere the surface rises or falls; the movement is multiplied by a system of levers, and to the end of the main lever is attached a fine chain, connected with a spiral spring, changing the motion from vertical to horizontal. The spiral spring is fixed to an arbor, or axis, on which is placed the hand, indicating the changes. Thus the chamber is a substitute for the Torricellian tube, and the vacuum for the column of mercury. We understand the inventor has patented his invention in Great Britain, the Continent, and the United States.—*Liverpool Mercury*.

great inducement to become instrumental in the more extensive discoveries which undoubtedly must, sooner or later, reward the spirited proprietors of this fine property, and enable the Princess Royal Mine to rival its twin-sister the Burra Burra.

**GLEN OSMOND LEAD MINE.**—This mine is now in a very proud position. There are 30 miners, and 20 gramin employed, of whom not exceeding eight miners are employed upon two lodes out of 13. These eight miners raise upon the average 12 to 15 tons per week, considerably more than sufficient to pay its present cost.

**ADELAIDE COMPANY'S MINE.**—The reported new discovery is fully confirmed—the lode has been opened to the extent of 25 fms, and traced 50 fms. or more. Capt. Tirrell, who took the adventure for three months, at 12s. in the lb., raised 4 tons of rich ore in two hours. The lucky adventurer is much congratulated on his success, and commended for his judgment. The directors of the Adelaide Company did not feel justified in extending the operations for the purpose of making new discoveries, but wisely determined to bargain liberally with Tirrell, in respect of any minerals he might find on portions of their property not previously operated upon. We need scarcely observe that a great enhancement of the whole, will be the result.

**MOUNT REMARKABLE MINING COMPANY.**—We understand, that in consequence of the difficulty of communicating with the company's district by land after the rainy season has set in, the workings will be suspended for the winter months. There are several considerable streams to cross on the long journey, and the short road to Spencer's Gulf cannot be called practicable in a state of nature. The Government has sent up a surveyor to define the line of road to the most desirable point for a shipping place on that shore of the gulf, which is sufficiently contiguous to the company's special survey, and doubtless land enough will also be surveyed to give them a fair opportunity of obtaining what they want at the sea-side or elsewhere; and when the utmost extent of water conveyance becomes available, the principal impediments will be removed. The miners who came in last week, report favourably of the survey in general, and state that a new discovery of a fine copper lode was made a short time before they left. The works which are temporarily suspended, have a promising appearance, and there seems no reason to doubt that a vigorous resumption of operations in the spring will be adequately successful. Some of our bushman-tourists, who excel in descriptions of the picturesque, are lavish in their praises of several verdant, or otherwise interesting localities in the district, which contains valuable quarries, as well as metalliferous riches.

## CASCADE MINING COMPANY.

An adjourned general meeting of shareholders was held at the Queen's Arms Hotel, Cheapside, on Monday, the 28th August.

DAVID L. WILLIAMS, Esq., in the chair.

A letter from Mr. T. H. Taunton, as purser, tendering his resignation of the office, was read; and it was resolved, that such be adopted, and that he be requested immediately to forward the books and documents relating to the mine, as also the lease, to the care of Messrs. Snell and Gages; and that, upon the receipt of the same, the lease be deposited with the Union Bank of London, in the names of the finance committee.—A resolution was also passed, appointing Mr. W. Snell as purser, in the room of Mr. Taunton, and also Mr. J. Gates to the office of secretary—it being understood that such offices be honorary, and no stipend attached thereto, until the mine shall be in an active state of working, and the liabilities incurred be paid off.—From the accounts submitted, it appeared, that the balance in favour of the company, up to the end of June, assuming all the shares to be sold, was 512l. 8s. 8d., which accounts were adopted and passed.

## EXMOOR WHEEL ELIZA MINING COMPANY.

A special meeting of adventurers was held at the Queen's Head Inn, Tavistock, on Tuesday, the 22d August.—R. SLEMAN, Esq., in the chair.—The accounts were examined and passed, showing—Labour cost for April, May, June, and July, 130l. 8s. 11d.; merchants' bills, 157l. 2s. 4d.; purser's balance, as cost-book, 94l. 19s. 3d.—882l. 5s. 6d.—Cash received for calls, 319l.—leaving balance due to purser, 63l. 5s. 6d.—A call of 1l. per share was made; and Capt. Whitford requested to sink the present shaft 12 fathoms.

The following report, from Capt. Whitford, was read:—

August 21.—It affords me great pleasure to be in a position to inform you, that, since my last, we have cut through our great north lode, in the 12th level, which is about 7 ft. wide; two of which are thickly impregnated with black and coloured oxides of copper; the other part is composed of gossan, mundaic, prian, and tinged with beautiful oxides of copper. The south lode is from 2 to 3 ft. wide, on the course of which has been driven about 7 fms.; in the bottom of the level there is a good lode gone down, about 4 fms. long. The counter lode intersects the above lodes, at an angle of about 60°. This lode has produced splendid specimens of sulphuret of copper; it is full 2½ ft. wide, of the most promising character: reasoning from analogy, there is a high degree of probability at the points of the junction of those lodes, that large deposits, or masses, of copper will be found. I may venture to state, as my humble opinion, if this mine does not ultimately prove productive, I shall hereafter regard indications as objects of allurement and deception; but I would ask, in the common sense of mining, what copper can be expected from those large gossan lodes at the depth of 12 fms.; they must be explored to a deeper level, ere any important returns can be made; therefore, I strongly recommend sinking the engine-shaft with all possible dispatch.

## GWINEAR CONSOLS MINING COMPANY.

The usual two-monthly meeting of shareholders was held at the offices, George-yard, Lombard-street, on Friday, the 1st inst.

ISAAC HAYWOOD, Esq., in the chair.

The notice convening the meeting having been read, the minutes of the last were confirmed.—From the statement of accounts, it appeared that the balance from last meeting was 250l. 7s. 8d.; cost for June and July, 248l. 6s. 6d.; merchants' bills ditto, 84l. 13s. 1d.—588l. 7s. 3d.—By call, 256l.; ores sold, 158l. 8s. 3d.—leaving balance against the mine of 168l. 19s.—The accounts were passed, and a call of 30s. per share made, and the purser instructed to take the necessary steps for the recovery of the back cost.

The following report from Capt. Hugh Stephens was read to the meeting:—

In presenting you a report of the present state and prospects of this mine—which state is not so prosperous as was anticipated would be by this time, still the prospects are of a very encouraging nature—there is a change taken place this week, which I trust will be an important one. This is in the 10th and east, in which there has been, some months past, a promising lode for copper, with good stones of ore occasionally—this is now changed into a tin lode. It is a large lode, fast increasing in size; we are carrying about 5 ft. of it, and that is not all. It is wide with rich quality tin throughout, and would pay to return in the mine. We cannot expect it rich work yet, not having reached the old tin workings. Looking at what has been done there in the former workings, and the good stones of tin we got from the adit level under the slide, but could not pursue for the water, there is good reason to anticipate very favourable results as we proceed east; there is a mine sinking in this level, about 5 fms. behind the end, in a promising lode, about 3½ ft. wide, saving work for copper. The 20th level east is driven about 25 fms. from engine-shaft, in a large kindly lode; the lode in the present end is not so large as it is generally; it is about 2 ft. wide, composed of spar, peach, mundaic, and ore, but not to value. The 20th level west is driven about the same distance, taking the slide with it, the lode is large but unproductive; and from the appearance of Stephens's shaft, a few fathoms before it, I expect something better soon; the lode there being a course of mundaic, mixed with a little black ore. The engine-shaft is much harder than it was at the commencement of this pump, but I hope is approaching a change—the kilas being of a lighter colour; it is now sunk about 6 fms. under the 20th level.

## WHEEL WALTER MINING COMPANY.

A special general meeting of shareholders was held on Tuesday, the 29th August, at the offices, 4, King-street, Cheapside, to receive a statement of accounts from the purser (Mr. Walker Weekes), and to consider the best mode of finally winding up the affairs of the mine.

HENRY SMITH, Esq., in the chair.

The notice convening the meeting having been read, a letter from Mr. Bridgman, as solicitor to Mr. W. Weekes, enclosing the accounts, showing, as due to creditors, 389l. 4s. 4d., having been read, a discussion ensued as to the course to be pursued, with reference to the claims on the company, when it appearing that the sale of materials had yielded 165l. 17s. 8d., which had been received by the purser, in addition to 86l. being amount of calls which had not been accounted for, a resolution was in the end carried to the effect, that a communication be made to the several creditors, requesting them to apply for their claims to the purser; it being, moreover, represented by the hon. secretary (Mr. Crofts), that remittances had been made, to meet certain claims, which appeared in the accounts submitted. Mr. Wm. Snell being present, it was finally resolved, that that gentleman should forward a copy of the resolutions passed at the meeting to the respective creditors, and that the same be advertised in the columns of the *Mining Journal*. But few adventurers were present, although more than a majority of the shares were virtually represented, and the only object of importance being the consideration as to the best mode of winding up the affairs of the company, by liquidating the claims on the mine, and it appearing from the representations made to the meeting, and the production of certain accounts which had been furnished, that there were ample funds in the hands of the purser to discharge such claims, the meeting adjourned until Wednesday, the 13th inst.

**NORTH POOL.**—At a meeting of adventurers, held at the mine, on Tuesday last, the accounts, as follows, for May and June, were allowed, and a dividend of 15l. per share declared.—By balance from last account, 610l. 13s. 8d.; ores sold (less dues), 3047l. 6s. 10d.—3658l. 1s. 7d.—To costs, &c., for May and June, 1875l. 10s. 4d.; dividend of 15l. per share, 1500l.—3075l. 16s. 4d.: balance in favour of adventurers, 582l. 5s. 8d.

**BLANNAVOY.**—We have much pleasure in announcing, that two furnaces were put in blast at these works on Wednesday night. There is great credit due to the indefatigable furnace manager (Mr. Leadbetter) for the manner in which they were blown; and, through his great skill and energy, it is expected that they will commence casting yesterday (Friday).—*Monmouthshire Merlin*.

**IMPORTATION OF COPPER.**—The steamer *Saba*, from Antwerp, has brought some packages of copper, consigned to a firm of eminence in the metropolis. This is an interesting importation from Belgium.

Sir,—I observe, in your *Journal* of last week, that Mr. Richardson, C.E., appears anxious I should answer some questions which he has set forth respecting the Cowarth Mine. Although reluctant to carry on a correspondence in such way, yet I suppose I must indulge the gentleman for this once by a reply, if, Sir, you will allow me a short space in your columns. The first question Mr. Richardson wishes to know is, the quantity of work done, and the time it occupied. To this, I beg to say, the number of fathoms explored on the different lodes, by driving, sinking, and stopping, amount to about 180 fathoms, which occupied three years, and produced 210 tons of ore; during this time, the adit, which is in the country, was driven about 80 fms., the shaft sunk 13½ fms., and a cross-cut driven 11 fms. With respect to the amount of money it cost the proprietor, I am not prepared to say, as a very heavy sum was laid out on the freehold property, in building, &c., which was mixed up with the mine accounts; but I can assure Mr. Richardson that every fathom of ground was let by contract, as well as the wheeling and hauling, by parties who had themselves explored scores of fathoms long before Mr. Richardson ever saw a mine. I am sure every miner must be well satisfied with the present state of the mine, in judging the produce by the quantity of ground developed; but, perhaps, Mr. Richardson, would like to be informed how many pounds of ore a fathom will yield, so as to guide him in his future calculations? The next question Mr. Richardson wishes to know more particularly about is, the sinking the shaft, water charges, &c. Now, Sir, the shaft was let us per fathom, to sink by six good Cornish pick and gadmen (as Mr. Richardson calls them), and two labourers; but, unfortunately, the ground proved so hard, that picks and gads were of but little service. The shaft was sunk 9 ft. by 6 ft., with four corner lines, 13½ fms., which occupied eight months, and cost from 7l. to 20l. per fm. I believe 30l. was paid for one fathom, which was an exceedingly hard bar of ground. During the sinking, the water and stuff was hauled by the two labourers, who stood 12 hours each, day and night. After this, for several months, the water was drawn by the whim with barrels, which only cost from 2l. to 3l. 10s. a month; but, in driving the last six or seven fathoms, in the bottom level, a strong feeder of water was cut, coming from the country, which swelled the charge to 8l. 10s. a month; but, long ere this, the mine showed such fatal symptoms, that no wheel, nor even Mr. Richardson himself and his model system, could have saved her life. Before I take my final leave of Mr. Richardson, allow me to tell him, that it is not in the system of working that the Merioneth Mines have proved a failure, but for want of more metallic ores in the lodes; and, if practical miners had been sent into the county to inspect them, instead of civil engineers, many thousand pounds, would have been saved to the young mining capitalist. A MINER.

P.S.—Although I shall not please Mr. Richardson with my name for this time, yet I have stated nothing in this, nor in my former letter, but what I can be borne out in by facts and figures.—*Merioneth, August 29.*

## OPENING OF A NEW COLLIERY AT BARNESLEY.

Sir,—Allow me, through the medium of your valuable columns, to notice an interesting occurrence in connection with coal mining, which, I doubt not, will be gratifying, and of considerable interest, to your mining readers. On Tuesday, August 22d, Messrs. Thorpe and Co. formally opened a new colliery, called the "Honey Well Colliery," at Barnesley, when all the workmen in their employ were treated to the good old English fare, and to which they did ample justice. There are on this colliery three shafts—two downcast, and one upcast; the latter, which is carried up by brickwalls several yards above the surface, is called the "Cupola;" and near the top is engraved on a stone, in large letters, the following significant sentence:—"Cupola Life Preserver." A railway will shortly be constructed near the spot—so that the passengers may read the inscription as they fly past. Mr. Sutcliffe, who has on former occasions explained his system of ventilation in the *Mining Journal*, is the manager of this colliery, and invited some friends on the occasion to inspect the air-courses in the mine; and, by the use of the anemometer, showed them that a current of air was traversing the mine at the rate of upwards of 9½ miles per hour. The area of the air-course where this instrument was placed is 36 ft. and the total quantity of air passing through the mine each hour was 1,870,000 cubic feet—a quantity passing with a rapidity which would allow but small opportunity indeed for the accumulation of carburetted hydrogen. The anemometer employed on this occasion was the one lately patented by your correspondent, B. Biram, Esq.—the construction of which is exceedingly delicate, and yet so simple in its operation, that any person, though totally unacquainted with machinery, can immediately comprehend its mode of action. It is most admirably adapted for ascertaining the state of ventilation in mines—and certainly no colliery should be without one; and I am convinced that, were they in more general use, numerous accidents of a fatal and deplorable character would be prevented—as, by forcing on the attention of the viewers the sluggish motion of the air through the workings, it would follow, as a necessary consequence, that measures would be adopted to increase the current. Much credit is due to Mr. Sutcliffe for practically carrying out this improved method of ventilation, proving that he has not been satisfied with merely recommending others to adopt his views, but that he has practically proved that his system is a great improvement, and one which should be brought into operation by every one anxious for the safety and well-being of those in his employment.—A MINER'S FRIEND: *Barnesley, August 29.*

**LAMERHOVE WHEAL MARIA MINE.**—The following report has been received from Captain John Tabb, dated August 30:—"There being nothing important to report on, our operations being confined chiefly in sinking the engine and Davey's shafts. The engine-shaft is sunk below the 40th level; the ground in the shaft is favourable for sinking, being a light killas. Davey's shaft is sunk 6 fms. 3 ft. below the 80th level, and shall reach the 40 about the middle of October, where we intend to drive the cross-cut north and south, to intersect K. L. and M. lodes; the K and L lodes will be intersected about the end of December; the lode in the 30th level is precisely of the same character as last reported.

**CAMBORNE CONSOLS.**—We are credibly informed, from the immediate neighbourhood of these mines, that very shortly after operations were commenced on Martin's lode, a beautiful course of ore was laid open, which is said to be worth, at the present low standard of copper, at from 60l. to 70l. per fm. This discovery has been kept a secret as long as it was possible, for reasons best known to those who were the fortunate first initiated, but with what fairness towards their co-adventurers, or co-promoters, is a question which the latter would, probably, not answer to the liking of the former. However, the result of the undertaking remains the same, and it is only a matter of astonishment in Camborne, that the adventurers are not more actively engaged in bringing the ore to the surface. Rumour attributes it to the temporary absence from England of some of the London directors, which attaches, of course, but little importance to those left behind. There is not the slightest doubt entertained by those better acquainted with the prospects of Camborne Consols, that it will, in a short time, be one of the best paying mines in Cornwall, of which some parties in London appear to be fully conscious, having been most busily engaged in buying up all the shares they could obtain, to the detriment of more active and legitimate operations on the mines. We quote the shares at 5l. premium, but know of none that are to be had at that price.

**MINES IN TEXAS.**—We have received specimens of ores procured from the neighbourhood of San Saba, and an old mine on the Nueces. According to the Mexican traditions, these mines were formerly worked by the Spaniards for silver, but no silver is contained in either of the specimens we have received. They are chiefly iron ore, and some of them contain bright particles of yellow mica, which probably induced those who procured them to believe that they contained gold or silver. We have been informed by a gentleman who visited the mine on the Nueces, that there is a shaft at this place sunk more than 60 ft. through a compact limestone, and there are relics of old furnaces and some mining tools near the shaft, indicating that many persons were once employed in working this mine; but whether the excavations were made merely to discover a vein of precious ore, or to procure ore from a vein that had been discovered, seems quite doubtful. Certain it is that no specimens that have been yet found at the mine indicate that it contains any ore of silver or gold. It is not improbable that the excavations were made to search for a silver mine. It is well known that the Spanish miners were so ignorant of geology, that they often made extensive excavations to search for gold and silver in rocks that were as destitute of these metals as the forest trees that overshadowed them. If the mines on the San Saba and Nueces had ever yielded any considerable quantity of the precious metals, some account of them would have been found in the old records of Bexar, or the Presidio of Rio Grande. These records, however, we understand, do not furnish any evidence that valuable silver mines were ever worked on the San Saba or Nueces. The missions, established on the San Saba and at Fort del Altar, on the Nueces, appear to have been formed rather as frontier posts, to check the incursions of Indians, or to form a part of the chain of military posts, connecting the Spanish possessions east of the Sabine with those west of the Rio Grande. It is a singular fact, that a line of old dilapidated forts, or missionary stations, can be traced quite across the country, from the Presidio de Rio Grande to the Trinity. The remains of an old fort were discovered on the Trinity, far above the present site of Dallas, about four years ago, by a party of our troops, who were out on an excursion against the Indians. Shortly after this fort was discovered, a number of persons traversed the country for miles around it in search of mines, but their search was fruitless; and such, we fear, will be the search of those who are endeavouring to find valuable silver or gold mines on the San Saba and Nueces. There are, doubtless, very rich and valuable veins of lead ore in those sections, quite equal to the lead ores of Missouri and Illinois; but it is very doubtful whether any valuable mine of silver or gold will ever be found in any portion of the country watered by the Nueces, Colorado, Brazos, or Trinity. In the country watered by the Puerco, and the tributaries of the Rio Grande, above the mouth of the Puerco, where the primitive rocks abound, we may reasonably expect that valuable gold and silver mines may be found.—*Houston (Texas) Telegraph*.

**LATEST CURRENT PRICES OF METALS.**

## NOTICES TO CORRESPONDENTS.

**ANALYSIS OF CORNWALL ORES.**—*Editorial.*—In my letter, which appeared in your last week's Journal, the words "peroxide of tin," should have been "peroxide of iron."—*M. W. D.: Politics, August 22.*

*J. W. V.*—"The Geological Survey of Great Britain," noticed in last Journal, is published by Longman and Co., Paternoster-row.

*Received.*—A Purser (Liskeard)—A British Merchant (Lisson-grove)—A Shareholder (Cornhill)—An Intending Patentee (Bodmin).

*Enquiry.*—In our few observations of last week, on the loss of iron and sulphur in the smelting of copper ores, for 100,000 tons, read 1,000,000 tons; and a line or two further on, for a strong subject, read a strong statement.

## THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, SEPTEMBER 2, 1848.

In another portion of this day's impression, we have given a comprehensive report of the week's proceedings in Parliament on that important question, the reduction of the duties on foreign copper ores. It will be seen, that after a lengthened debate, extending over a large portion of the week's attendance in the House of Commons, the Ministry have carried the measure, through all its stages, in that House, by respectable majorities, and that it was read a first time in the House of Lords yesterday, and carried by a majority of 17 to 13 in favour of Ministers. It is not our intention to enter into the merits of the question on the present occasion, or its various bearings on the mining and commercial interests of the three kingdoms, and will merely call attention to the arguments and statements advanced, *pro* and *con*, which possess in themselves much interest. We purpose, in our next Number, when the measure will have, most likely, become the law of the land, to enter into a general review of the question, and the effects it is likely to produce on our mining, commercial, and maritime interests.

Our attention has, for some time, been directed to a series of grievous and long existing evils under which the copper mining interest has been, and still is, more particularly at the present moment, labouring—evils, although glaring as they are monstrous, are, we think, but little reflected on by mine adventurers, who, because the practice is of long standing, and of every day occurrence, allow the subject to pass on as a mere matter of course. These evils are as unjust in principle as they are oppressive in their action, and from which the miner must be, sooner or later, in a great measure, if not altogether, emancipated.

We allude to sundry monthly charges, to be found in the cost-book of almost every copper mine, in the shape of "ticketing expenses," "sampling and weighing fees," &c. Now, according to our humble opinion, we feel bound to confess, that we consider the smelters are already paid enough, without these additional taxes on the pockets of mine adventurers. The buying and selling of the ores by ticket, or pretended competition, is altogether a farce, and in no other light will it be viewed. Moreover, they have their 21 cwt. to the ton, their dry weights, and their 22.15s. a ton returning charges; yet all these do not satisfy them, but, forsooth, the very *servants* and *agents* employed by them must be paid and maintained by the adventurers also. To convey some idea of these matters to those unacquainted with the nature of, and the expenses attendant on, the selling of copper ore by ticketing, we will suppose a mine, by dint of scraping and close working, to be able to return 250 tons per month. In the first place, an agent of one of the copper companies attends and samples these ores, which may occupy him an hour, or an hour-and-a-half, at the farthest, for which he is paid a guinea on the spot; in the second place, these ores have to be sold, and the ticketing expenses attendant thereon will probably be about 14d. a ton, or 17. 11s. 3d.; and in the event of two agents dining—namely, manager and purser, which is generally the case, there is an expense of 12. 10s. more; and lastly, the weighing off the ores by one or more of the copper companies' agents—supposing there are four parcels—10s. in addition, and a good dinner into the bargain on the mine. Thus, we see the expenses resulting from the sampling, selling, and weighing of these ores, taking everything into consideration, will amount to little short of 60l. a year, saying nothing about 25. 15s. a ton returning charges; and in such a mine, for instance, as Devon Great Consols, in all probability, will amount to 500l. a year. Not only do these monstrous and crying evils exist, but at every weekly ticketing the purchasers, their agents, cashiers, clerks, and samplers, to wit, have a princely dinner provided for them, with every delicacy of the season, and plenty of wine, without a halfpenny to pay. Surely there is room and reason for reformation here—more especially so, when we look at the great and manifold drawbacks and disadvantages, both local and general, under which the miner is at present struggling. Reduction of expenditure is of vital importance at the present moment to the Cornish miners, inasmuch as it involves the ability to continue operations in four-fifths of all the mines in the county, consequent on the low price of tin and copper ores; and should such a state of things much longer continue, the adventurer will be in a fair way of being ruined, and the laborer starved. Daily are we pained to hear of the men being discharged by the scores from the mines, and of rumours of mines stopping—aye, and large ones too; and all this without any ostensible or valid reason, but that of swelling the already overflowing contents of the coffers of the copper smelting companies.

We find that we were inaccurate in stating, that the contemplated new smelting company purposed to limit their operations to smelting only. Our misunderstanding was founded on the first paragraph in their prospectus—from a superficial reading of which we had drawn the conclusion, that the company were to be smelters only. We find, however, that we were wrong in supposing it to be possible for a great company to tie its hands, by making itself the workmen only of those who may choose to let their ores pass through the new furnaces, because the mining companies of Cornwall, working, as it were, from hand to mouth, depend entirely upon the sale of their ores to pay their costs. The meaning of the paragraph in the prospectus alluded to is, that the British Smelting Association intend "to apply the capital of the undertaking solely to the operations which are inseparable from that business" (copper smelting)—that is, that they are to be copper merchants, as well as copper smelters—the two being, under present circumstances, inseparable; but, we understand, that they will carefully avoid entering into any extraneous business—such as iron-works, collieries, &c. It will be, therefore, the object of the new company to enter into the market as a competitor with the old in everything, except in the injustice and monopoly to which the latter has so long and so largely committed itself; and this, we apprehend, is the great desideratum which the mining world wishes to see supplied.

We could really very much wish that the *Cornwall Gazette* was less given to exaggeration and general partisanship than it unfortunately is. We would much rather see so old, and, in some senses, so respectable, a journal, making itself a vehicle for truth, than a habitual medium for misrepresentation. We say nothing at present as to the ardour of its political passions, though it outdoes Sir Balaam himself in the fervour and universality of its cursing. In that we must needs leave him to the gratification of his natural instincts; but when in reference to the general circumstances of the county of Cornwall, and its mining circumstances in particular, it has plastered out a picture false in its colouring, false in its proportions, and false in the grouping of its assumed facts, we feel bound to tell that journal, that it is misleading the public as to the actual state of the county, and as to the state of its mining interests—doing that which must result in their deterioration, rather than their improvement. Cornwall, in the columns of the *Cornwall Gazette*, is a deserted and a desolate county—its mines are idle—its machinery out of work—its people emigrated—its ports unvisited—and its population unemployed. There are traces of its having been once occupied by a race of industrious men; but both the industry and the men are vanished—her shores and her havens are empty—and her mining homesteads are become a common desolation. We are happy to know that this is but a newspaper statement—that it is one of the rough drawings of the *Cornwall Gazette*; and that, though the county shares the common difficulty of the times, and feels the pressure resting on all the springs of its industry, it suffers only in common with all the counties of England, and is as able as any of them, when, by the good hand of Providence, the pressure shall be removed, and the interruptions to universal commerce taken out of the way, to contribute her quota of wealth and prosperity, to consolidate the power, and concentrate the strength of a united empire.

The whole of this pleading *per contra* is but a flank movement of the *Gazette* against the removal of the copper ore duties. It is perfectly welcome, and has a perfect right to reason out its theorem against that measure; but there is neither reason, nor right, on the side of seeking to give that question a false momentum, from causes which, if they exist at all, are extrinsic to it. There is distress in Cornwall, but not from the removal of the duties, for they are not yet removed; nor from the failure of the harvest, for the consequences of that failure are as yet nowhere felt. The ticketings and the quarterly sales exhibit a declension, it is true, just as the general trade of the country has declined; but a change so serious as that shadowed out by the wild and preposterous statement of the *Gazette*, is out of the question, and utterly beyond the truth. We must say of the press, that when, in any of its departments, it habitually occupies itself in the creation of alarms, and the propagation of discontents, it fails in the great purposes of its institution, and that such a press, the sooner it were broken down, or rooted out, the better. We, of course, scarcely need to say, that by these few remarks, we do not intend any individual discourtesy—our only intention being to reprove a tone of writing which has not truth for its leading foundation, and which, in reference to the mining interests of Cornwall, are injudicious, injurious, and unjust.

A controversial correspondence between two parties, on the affairs of a company in which they are mutually interested, can have no practical benefit. It generally happens that the disputants are persons who are merely shareholders, or who, at all events, declare, at the very outset, that they are neither directors, nor even known to them, and, consequently, have no official connection with the company. It is, therefore, impossible that they should be sufficiently versed in every particular, to enable them to judge impartially of the motives upon which the directors act; and when the general body of their constituents are content to retain their confidence in any body of gentlemen, and by their tacit, if not expressed, acquiescence in their management, acknowledge that they have acted to the best of their ability, and as, in all probability, the most experienced among themselves would have done, if they had been similarly situated, we think it is scarcely fair, to say the least of it, to make use of the columns of the public press to carry on a warfare, in which alleged errors in the management of a public company are made the ostensible subject of controversy, but which, in fact, has more the appearance of a personal contention on matters quite irrelevant. Such correspondence is by no means creditable to the parties themselves, and can have no effect upon the undertaking, which it is their presumed object to benefit.

We have been led to make these remarks by the correspondence on the ASTURIAN MINING COMPANY, which has weekly appeared in this Journal for some time past, and which, we are sure, all those interested in that concern, whether as shareholders or directors, are far from encouraging. In our Paper of the 29th of July last, "Detector" refers to a remark which had appeared in the *Railway Chronicle*, to the effect, that the calls had not been met by the shareholders with that readiness which would have enabled the directors to display, to a greater extent, the value of the mines. He acknowledges, in the very next sentence, that the Editor evidently offers his own opinion; and yet proceeds to argue, as if it was really the case, that the calls had not been well responded to, and makes statements, purporting to be the causes of what he does not know is a fact or not! "Detector" observes, that he may have other sources of information, but these he has not even hinted at, only referring to the information he has acquired by an "attendance at most of the meetings of the company;" and that, from "the reports read, and the facts which have been brought to light by the discussions on them," he is convinced that the reluctance to pay calls proceeds from the favourable expectations of the directors not having been realised. Now, it is not our business to defend the directors, under all circumstances, nor will we take the part of any man, nor any body of men, if we consider that they have acted either indiscreetly or culpably; but, as public journalists, we must do our duty, and endeavour to place matters of importance, which concern our readers, in their true light. We have referred to the reports and proceedings of the company, and, considering the state of the money market for a long time past, and the depressed condition of all shares and stocks, we are only surprised that the Asturian directors have been so much more fortunate in receiving payment of the calls than has been the case with most other companies of late. We find that the total number of shares allotted and held by the public is 11,704; out of that number the following have been forfeited for non-payment of the calls, after due notice had been given to the holders:—For non-payment of the fifth instalment, 40 shares; of the sixth, 10 shares; of the seventh, 38 shares; and of the eighth and ninth, 100 shares—making, altogether, 188 shares, or, at least, not more than 200 shares—the holders of which were unwilling to invest any more money in the concern, or, perhaps, could not conveniently afford to do so. We cannot but congratulate the shareholders on this fact, and it entirely disproves the statements which may be made to the contrary. Indeed, it is somewhat ridiculous, to see the easy manner in which "Detector" contradicts himself; for at the conclusion of his first letter to us, he remarks, that the statement that no further calls will be made, was repudiated at the last meeting; and he adds it as his opinion, that "as long as 1l. can be drawn from the pockets of the shareholders, that 1l. will be called for, and that call enforced." Here, then, he acknowledges the error upon which he argues in the former part of his letter, and expresses an opinion, contrary to the supposition that the majority of the shareholders have yet refused to respond to the calls.

Now, as to the charge against the directors of having held out a hope of a dividend, and that no further calls would be necessary, and which expectation has not been fulfilled, "Detector" knows very well that they were deceived in the competency of their first manager; and that at one time, placing confidence in him, they were justified by his representations in making the observations which they did. We scarcely think it fair or just to blame the directors, after the circumstances have passed, for mistakes for which they are not exactly responsible, and to which any board of directors is liable. But another, and a highly qualified, manager being appointed, there can be no doubt that matters will, in future, proceed on a safer and surer footing. We may here refer to an extract from a letter which has been received from that gentleman

this week, and which appears in another column. The other points which form the subject of remarks by "Detector" and "Nil Desperandum," are quite irrelevant—indeed, most of them personal—and certainly it is not our attention to refer to them; but we hope that neither of them will trouble us on this subject again, until there is some necessity for their doing so.

We have given, in another column, a report of the proceedings at a meeting of the REAL DEL MONTE MINING COMPANY, the nature of which leads to the inference, that the concern is approaching a termination—a result which, as involving the loss of a capital of nearly a million sterling, must be viewed with great regret; and although in general we are averse to the application to foreign enterprises of money which might, as we think, be devoted with more benefit to the development of our own mineral resources, still when, as in the present instance, so much has been already expended, and there seems to be a reasonable probability of a successful prosecution of the works, we would fain hope that the apparently conflicting interests of the shareholders and loanholders may be arranged satisfactorily to both parties, and that a new concern may rise, like a phoenix, out of the ashes of the old. Perhaps few companies have shown such extraordinary perseverance as that of the Real del Monte, and the remembrance of the enormous price of 1500l. per share in 1824, still clings to the minds of many, who have been unable to divest themselves of the idea of a recurrence of those palmy days, forgetting, at the same time, that the shares have increased in numbers from 500 to 30,000, independently of the prior rights of the loan-note holders, amounting to 450,000l. We observe, on reference to the printed reports of the company, that, inclusive of the loans, twelve times have the shareholders been appealed to for capital, and twelve times has the appeal been responded to—the last creation of shares being in 1840, since which time there have been fluctuations of profit and loss, till at length the difficulties arising from the abundance of water, and the protracted war in Mexico, have compelled the company to succumb. We repeat the hope that some plan may yet be arranged for continuing the working of the mines, for the benefit of such of the shareholders who may be inclined to advance the requisite funds.

In another column we have given a report of the adjourned meeting of the NATIONAL BRAZILIAN MINING ASSOCIATION. From the great space occupied by us, from time to time, and the decided tone adopted, in recommending the course which should be followed, little else can now be expected, than to congratulate the shareholders upon the very sensible conclusion at which they have arrived, that confidence should be continued in the old directors, Messrs. OXENFORD and HAMILTON. The experience these gentlemen have had in conducting the affairs of the association must satisfy the proprietors of their ability, while the great interest they have dependent must naturally prompt them to employ the most skillful persons, and the adoption of the most energetic measures in working the property. The meetings being over, we recommend that all feelings of opposition should subside, and directors and shareholders earnestly co-operate in devising and carrying out the most judicious course of management, to effectually develop the riches it is so confidently expected their property possesses; and glad, indeed, shall we be, to have to record the anticipated successful results.

It is due to the corporation of London to say, that the report of the commissioners appointed to inquire into the sanitary condition of the City, exonerates the corporation from much of the blame which the public supposed them to have merited, on account of the alleged defects in the general sewerage of the important district under their control, and also on account of their strong objection to have London included in the Government Health of Towns Bill. It appears that, of a course of sewers, reaching in all their windings within the City of London 54 miles, 50 miles are in fair working order, and well answering the purposes of their construction; that four miles only remain to be built, which will shortly be set in hand; and that a vast work of this description has been done within the last 20 years, equivalent to what had been done in the preceding 100 years; that, in general, the arrangement and efficacy of the sewers is what might be expected from the eminent men by whom they were planned, and under whose direct superintendence many of them were built; and, finally, that there is little to desire, or possible to be accomplished, in this respect, beyond adding to the dip of the channels, and completing the four miles of requisite sewers referred to. The report manifestly removes from the corporation very much indeed of the reproach which it was very common to fling in their faces, for the resistance which they offered to the recent attempt of Government to pass an efficient sanitary measure, and to have the City included in any of the provisions of that very reasonable and necessary enactment. Having ourselves concurred in the imputation of blame, we have all the greater pleasure in cancelling the reproof, when the causes of it are either removed or explained; but neither the perfecting of the entire line of sewers, nor their maintenance in good working order, makes up the whole sanitary task of the corporation of London—that, indeed, is a volume which we shall not open at present, because we have not leisure to read it through to them. Still, this much we may take leave to say, that if they had consented to the introduction of a clause or two, making it compulsory to build a drain for every inhabited house, and to flush at frequently recurring periods with fresh water, the whole drain and sewer work of their large district—had they solicited, we say, the introduction of two such clauses into the Government bill—they would have done more for the wholesomeness and the health of their great city than now, by any exertions or ingenuity of their own, they are at all likely to realise.

The questions of the Government of the British colonies, and the scale on which it is practicable to promote their prosperity by emigration from these islands, are among the most leading public considerations of the day. We have ourselves, in some measure, swam with the tide, and given, from time to time, as much space to the elucidation of these subjects as we could command, after the consideration of those other questions, which are the peculiar and constant objects of our attention. We have said before, that the great distance of the Australians from us, would, in all probability, operate as an impediment to their rapid colonisation. It could not well be otherwise, with respect to any two points on the earth's surface, where half the convex world intrudes between. The lands stretching down beneath the radiance of the southern cross, are for all purposes of help to them, or relief to us, most disadvantageously situated—most inconveniently distant—that is for the general purposes of commerce and mutual support from England, who spreads out her havens and her rocky coasts in the very beam of the polar star; and this point of distance, and of consequent expense of colonisation, is, in the present circumstances of the parent state, of the very first and highest importance—not that by any means that circumstance ought to, or could, prevail against the resources of the British Government and people, moved to the use of them by prizes of an adequate and commensurate value. In any of the tasks which the business of empire may impose upon us—if we may have leave to trace upon our banner, altering the motto, the old consular motto—"Senatus populusque Romanorum"—we believe there is skill and wisdom, and resolution enough left us, to act up to the full measure of our true policy and of our real wants. If any public necessity, or great imperial interest presented itself, we should be found doing all that a nation can do to meet and to master the exigency.

But even a good thing may be done too largely. It is quite possible to sow a much larger harvest than we can reap—to plant more vines

than we can prepare presses to receive the vintage of; and, in that case, both grapes and grain are shed upon the ground, notwithstanding the cost and toil of your tillage and your husbandry. It may be much the same thing with the colonisation even of South Australia; you may press it too earnestly—you may proceed with it too liberally; and that very measure which was meant for the greater strength, and the fuller life of the colony, may, for a season at least, result in its more pitiable decrepitude, and its more painful deterioration. If, simply by the acquiescence of Government, and without its active interference, the soil of Australia will this year be pressed by the feet of 20,000 new comers, is it not probable that such a number may reach the maximum, to which it is in the power of that group of colonies to give an English welcome within that very calculable period?

It is nothing to say that this limited sum of emigration does not meet the necessities of the case. We apprehend it meets the present necessity of Australia, and we have a circle of other lands which we can benefit by the same process, and from which, in all human probability, there will flow back upon us a stream of social and commercial advantages, which will stand to our present pains and our present expenditure, as harvest stands to seed time. It will not be possible, as it appears to us, by any extent of effort which it is in our power to put forth, to produce any immediate, any sensible, impression on the labour market of the United Kingdom; but, without doubt, the benefit of those exertions to the colonies will, in the fullest sense of the word, be immediate and important; our advantages, on the other hand, will rise to the surface more slowly—the light shining upon the colonies will be but faintly reflected upon us; it will increase from month to month and year to year, until having organised as part of our standing policy a safe and circumspect, though a vigorous and progressive, system of emigration, we find the colonies strong in their numbers, in their wealth, and in their attachment to an empire, of which they are the grateful and the growing, though the distant and laborious, members. In a word, it is less from considerations of its expense than of its inexpediency, that we doubt the prudence of a sudden and a large immigration into the Australias. The sooner the work in that direction is proceeded with the better; and also in every direction where the colonies either want, or are prepared for, a reinforcement of their operative industry; but, in every case, in order that we may not surprise the colonies with a surplus number of hands, nor neutralise, by excess, the benefits we intend to confer, let our exertions be gradual, guarded, and persevering. We judge of the policy of emigration on a large scale, by the advantages, in a general sense, arising conjointly to those who send, to those who are sent, and to those who receive; and, if there be a large and palpable failure of benefits as to either, we do not say it could be raised into a conclusive argument against the undertaking, but it would necessarily lessen the probability of its success. In town and country the press is, at all events, stereotyping its exhortations to Ministers to proceed with some scheme of emigration on a large and expansive scale—to shadow, in fact, the whole horizon with their colonising wings. On the other hand, her MAJESTY'S Parliamentary opposition occupies itself with reproving Government for moving too freely and too rapidly in that very direction, which out of doors is so confidently recommended.

A temporary lease of Vancouver's Island to a large, opulent, and ancient company, for purposes of forwarding and foreshadowing colonisation, must not be conceded, lest we for a time dispossess ourselves of some ports on the north-western coasts of America, into which, by the thinnest of all conceivable possibilities, the commerce of Chipango and Cathay, and the island paradise of Marco Polo, some centuries hence, may flow. It would be impossible, we venture to say, for any Government to act in the spirit of two such conflicting propositions; and there is little reason to doubt that the diligent and able UNDER SECRETARY for the Colonies will, as far as he is concerned, pursue, and Parliament sanction, a policy not unlike that stream which rolls past their palace of legislation, whose praise and reputation it is, to be "strong without rage, without overflowing full."

#### THE MINER'S SAFETY LANTHORN.

In the *Mining Journal* of July 22d, we gave a full description, with diagram, of a safety lanthorn for miners, the invention of Mr. Crane, of Birmingham. We have since received two of these lanthorns, which may be inspected at our office by any persons interested in their use, and we think they will be found a great acquisition to the working collier, and be preventive of many accidents, when brought into general use; Mr. Crane is also manufacturing an oil safety-lamp, on an improved and somewhat similar principle. He states, in a communication, that an accident has lately happened at the colliery of Messrs. Jones and Oakes, solely through the doggy carrying a naked candle; and, had the system recommended by him been adopted, no such accident would have happened; but, as long as miners are suffered to work by open candles, so long will there be danger of explosions, as inflammable air may escape from blowers into the mine at a moment's notice, and this danger can only be avoided, by insisting, either by the authority of the owners, or, what is better, by Act of Parliament, that no collier be allowed to work with any other than a safety insulated light—either a lanthorn or a lamp. Now, the working colliers had an equal objection to the old "steel mill" as to the safety-lamp—consequently, the latter is now, in most cases, used only to examine the state of the air in the mine, while the miners go to work with naked candles. The objection cannot be urged against these lanthorns, as they give an equal light to an open candle; and the inventor trusts the time is not far distant when they will be generally used to work by. He recommends that when they are in use, every man's lamp, or lanthorn, should be kept locked, so that when his light was nearly out, he would have to apply to the overseer of the lights for a fresh one, whose duty it would be to light it, place, and lock it in his lanthorn, and such overseer to be held responsible for any man being without a safety light, and if such measures were adopted, explosions could never occur. Mr. Crane states, that he finds considerable prejudice to exist against his system, because of a trifling additional expense; it is, however, attracting attention in some quarters, which gives him reason to hope it will eventually triumph. It would be to the ultimate interest of the masters, as well as the men, that explosions should be prevented; and as Mr. Crane is propounding no new theory, but it being well known that wire gauze when in repair is a perfect safeguard from the penetration of the gas to the flame, we should be happy to hear of its introduction into one colliery, as then, we think, it would very soon become general.

#### BLEACHING, COLOURING, AND PRESERVING WOOD.

We have, during the week, had an opportunity of inspecting some beautiful specimens of wood, prepared under the patented process of a French gentleman, of the name of Renard-Perin, and which must open a wide field in the construction of useful and ornamental fancy cabinet work, and the internal architecture of our houses, public buildings, &c. All our commonest woods, such as pine, beech, larch, elm, oak, &c., have imparted to them an entire new character, both in colour and the disposition of the grain, or curl, which, from the wood, after the operation, being susceptible of a high polish, is brought out in the greatest richness and beauty. Some specimens of tables, panels, &c., made from this prepared wood, are exceedingly rich, surpassing any of the more expensive woods in their natural state, and which will, doubtless, come into most extensive application. We are not aware of the material employed to have this effect on the wood, which, although patented, the proprietors keep a profound secret. The manipulation is of a simple nature, consisting in causing an exhaustion of the contents of the cellular tissue of the timber, and, while so exhausted, injecting a solution of the material into the pores. The operation is performed on green, or fresh cut, timber, and the whole tree is operated upon at once, which becomes so thoroughly saturated with the preparation, that on cutting any portion of it, the same altered appearance in the grain present themselves, and the wood, we are informed, is very soon fit for use, which otherwise would require many months' seasoning. Wood thus prepared is rendered proof against dry rot, decay, and the ravages of insects; and thus, in addition to its great beauty, this wood may be brought economically into use for the common purposes of building, or other uses to which timber is generally applied. The cost of the machine is about 12*l.*; and it can be used in the fields, or forests, or on the shores of rivers, and does not require very experienced hands. Specimens may be seen at the offices of Mr. Oppenheim, Bouverie-street, Fleet-street; and as the subject is one of considerable importance, we shall probably return to it in an early number.

SMITH'S PATENT GALVANISED IRON AND WIRE-ROPE.—The Lords' Commissioners of the Admiralty have ordered the Captain Superintendents, or Commissioners, of Deptford, Woolwich, Chatham, and Portsmouth Dockyards, to report the result of the experiments made on the specimens deposited at the several yards, by Mr. Andrew Smith, in the year 1813.

#### DEFECTS IN THE PRACTICE OF LIFE ASSURANCE.

A pamphlet has just been published by Messrs. W. S. Orr and Co., of Paternoster-row, *On the Defects in the Present Practice of Life Assurance, with Suggestions for their Remedy*, which will be read with much interest by those who have availed themselves of the advantages held out by assurance, as also those who are connected therewith as proprietors. Having glanced at the origin of life assurance, and slightly recorded its history and progress, the author proceeds to point out the defects which exist in the present practice. He shows, that the premiums required are always more than sufficient to meet the mathematical or calculated risk undertaken; were it otherwise, and a life company become a failure, it would, in not fulfilling its engagements, be attended with such wide-spread and disastrous consequences, that no institution, charging the calculated equivalent rates, would receive such countenance from the public, as to enable them to carry on business for any length of time. Among the proprietary assurance companies, the fact of a large capital being nominally subscribed for, and a comparatively trifling amount advanced, is justly deprecated; and it is shown, that some of them who advertise capitals of 500,000*l.* or 1,000,000*l.*, have probably not more than 20,000*l.* of paid-up capital, and often much less. The practice of these proprietary companies is to put forward a capital, for the sole purpose of benefiting the shareholders, at the expense of the assured—the nominal capital affording a pretext for taking from the assured either the whole, or a portion, of the profits arising from their contributions. The principles on which mutual assurance societies are founded are then ably discussed, and shown to be the only ones which the public are interested in upholding; for while in all mutual offices the policies have increased in value—the "Equitable," for instance, 500 or 600 per cent.—those of proprietary companies still only represent the original sum assured. The progress of life assurance has also been much retarded by disputes and law-suits— vexatious delays in the settlement of claims, extorted compromises, and protracted litigations, have had the effect of deterring many persons from resorting to life assurance; and the author very clearly points out the risks to which the assured are exposed by the present method of conducting life assurance business. Law cases in point are given which support his views, and show that the aggrieved party seldom has it in his power to obtain redress from a court of law; for, however strong the equity of his case, the claimant finds he is not in possession of sufficient evidence to induce the court to decide in his favour, all the evidence being in the keeping of the office; or he finds that the statements in the original returns do not agree—some mis-statement made, or an erroneous medical opinion given. Hence he finds his policy worthless, and himself at the mercy of those who, although his debtors, may resist the demand altogether, or compromise the matter, by a partial satisfaction of his claim. The author concludes this very able little work, by suggesting a remedy at once simple and efficacious. Let all assurance companies insert in their Deed of Settlement a clause, prohibiting them from disputing any policy they have granted—a clause approved of by the Registrar of joint-stock companies. Let them make sufficient inquiry before granting an assurance; abolish the warranty clause, and grant unrestricted policies. Whenever there must be a reliance upon the honour, generosity, or sense of interest in others, there must be uncertainty and risk; a claim which cannot be set aside, or even disputed, is the only result to which a wise man can look forward, with any satisfaction, as the end of the transaction on which he enters when he assures his life, or to which he can trust the well-being of his survivors.

#### ON THE SUPPLY OF WATER TO MANCHESTER, SALFORD, AND STOCKPORT.

A report on the best means of supplying these populous towns with that essential necessary of life—pure water—by Mr. S. C. Homersham, C.E., has just been published by Mr. Weale, of High Holborn. It appears, that the quality of the water with which these densely-populated districts are supplied, is anything but unobjectionable; and that, by the Manchester, Sheffield, and Lincolnshire Railway Company purchasing the Peak Forest and Macclesfield canals, they are enabled to supply an unlimited quantity of pure and wholesome water. The corporation of Manchester obtained an Act of Parliament, empowering them to construct water-works for the supply of the inhabitants; and this report suggests whether it would not be much better to make arrangements with the railway company for a supply of their water in bulk, than to procure it by their own scheme, which, in addition to the questionable quality of the water, would entail an enormous expense. Manchester is situated only about 120 ft. above the level of the sea at Liverpool, and is surrounded by hills and upland, from 1100 to 1900 ft. high. These hills rise very abruptly, and are intersected by numerous valleys and mountain gorges, containing rivers and streams—such as the Irwell, the Irk, Medlock, Tame, Etherow, Goyt, Dane, Bollin, &c.; these all unite in the Mersey, and join the sea at Liverpool. Comparing the quantity and quality of water which can be obtained from the two sources, the author arrives at the conclusion, that the railway company's plan has many very material advantages—one of which is, its aptitude for cheap and easy extension, in the nature of the ground on which the reservoirs and works are to be constructed; no outlay will have to be incurred as compensation to millowners; a great portion of the works are already made; and the expenses will not greatly exceed what is at present incurred for canal purposes. The adoption of this plan, it is stated, would at once secure for the inhabitants water of an infinitely superior quality to that at present supplied—a matter, we should imagine, of the utmost importance; and it is to be hoped that no selfish or individual interests will be allowed to interfere, or prevent the carrying out a plan for the supply of an abundance of pure water, upon which so mainly depends the health and lives of a large amount of population. There is an elaborate appendix to the work, with a beautifully executed map of the surrounding districts, pointing out most clearly their elevation, with the several water-courses and situations of the proposed reservoirs. There is also a supplement, in answer to an article that appeared in a Manchester paper, charging the author with misrepresentation of fact, or suppression of truth, which he ably refutes; but the general remarks are merely of local importance, and interesting to those resident in the vicinity, and whose supply of water, both as to quantity and quality, will be so seriously affected by the adoption of such a plan as the one proposed by the corporation authorities of Manchester. The pamphlet is produced in Mr. Weale's usual superior style.

#### MANUFACTURE OF GAS FROM WATER.

We were much pleased with a descriptive lecture, at the Polytechnic Institution, accompanied by a working model of a new hydro-carbon gas apparatus, patented by Mr. Stephen White, for the manufacture of gas from water and common tar, or resin, &c. The invention appears to be a very valuable one, and was ably explained in its various points by Dr. Ryan, the able coadjutor of Mr. Isham Baggs at this institution. The apparatus consists of three retorts placed in a stove, two of which are filled with charcoal and thin pieces of iron, and the other with iron chains hanging from a centre bar. The two first retorts are for the decomposition of water, which is regularly supplied by means of a syphon-pipe, passing through and into the centre of the retort; the water, in passing through the heated material, becomes converted into pure hydrogen and peroxide of carbon. It then passes into the third retort, to receive its dose of bi-carburet of hydrogen, which is prepared from common tar, resin, or similar substances, passing, or dropping, on the red-hot chain, from a syphon tube, which regulates its supply. This causes the tar, or melted resin, to throw off an abundance of bi-carburet of hydrogen gas. The gases being mixed in this manner, are immediately conveyed into the gasometer for use, without any purifying vessels whatever, none being required. The great advantages arising from this invention appear to be, the small, simple, and cheap apparatus required, and the beautiful, clear, and bright light produced, surpassing the ordinary coal gas; also, its perfect purity, being free from any nuisance in its manufacture, and, above all, so pure and innocuous, that it may be burnt in any private room, without the least ill effects or smoke resulting from it. The apparatus may be used, and the gas made, in any private mansions, churches, or manufactories, and on any scale, from 5 to 1000 lights or more, as well as for cities and towns. A sanitary measure it cannot be too highly appreciated, when we consider the thousands who inhale the poisonous fumes, consisting of sulphuric acid, sulphurous acid gas, ammonia, &c., given off by the ordinary coal gas, not only affecting the health of a mass of individuals, but injuring the goods of jewellers, silversmiths, and drapers, books, prints, pictures, furniture, and a variety of other articles. This gas can be made and supplied at a price considerably less than that of coal gas. Thus we see accomplished the foretelling of that eminent chemist and philosopher, the late Sir Humphrey Davy, "that at some future time gas would be generated from water for general purposes, surpassing coal gas in brilliancy and purity."

#### Original Correspondence.

##### COPPER SHEATHING—No. IV.

SIR,—I have the pleasure of noticing several communications, directly, or indirectly, connected with our subject, and will take them, as before, in the order of their appearance:—

1. In the *Journal* of the 19th, Mr. Mushet suggests an abridged method of copper smelting, with which, after the principles laid down in my No. 2, I cannot be expected to agree, and should not have interfered with, but for the statement that "copper, like iron, is capable of combining with carbon." If this is adduced from Mr. Vivian's analogical inference in the case of overpoling, it is not confirmed by the experiment stated in my No. 2; nor do I recollect, either in practice or books, any evidence of such a compound. If, however, Mr. Mushet has proof of the immediate combination of copper with carbon, he would oblige me, and might, eventually, confer a benefit on your smelting readers, by stating it.

2. "Smelter and Refiner." Although he has not answered my question respecting calcination, I am not, therefore, disposed to neglect his communication. His belief that continental coppers contain no sulphur, shows that the following analysis will be new to him:—

	Copper.	Sulphur.	Lead.	Iron.
Gustaf and Carsberg.....	99.55	0.11	0.10	0.13

His conviction that copper at 96 per cent. "is generally free from complaints," and that this "all depends on the refiner," may be qualified by the nature of the alloy. That it is the refiner's business to bring it up to 96 per cent. will not be questioned; but if the coarse metal come up to him, alloyed chiefly with iron and lead, or antimony, his product, with 4 (or even 2) per cent. of those metals will hardly satisfy himself, or his customers; whilst zinc, on the contrary, is actually used, in ten times this proportion, in Mr. Muntz's sheathing; and will he not then admit, that the nature of the alloy depends quite as much on the previous steps of the smelting process as on the refining?

Will he further, or "Germanicus," inform us by what method they determine the per centage of copper—whether by one of those (and which) recognised by chemists; or by a conventional one of practice—as the fire assay—that we may judge how nearly it is precise, or can be made so, in the advanced state of analytical science?—3. "Germanicus" has my thanks for his ready attention to my request, especially for his willingness to procure some of the copper (a proved sheet) stripped off after 20 years' wear. The more in tropical climates, the better is the thing wanted; and a new sheet, in addition, would be desirable, if the ore and process continue the same as 20 years ago. All expense he will allow me to refund; or, if he will put me in the way of procuring the copper, I think it may be got home for public good cost free. Does he know whether it keeps clean, or is subject to foul at sea? And can he give us the course of smelting operations, used at Roraa, then and now; or is it nearly the same as used for the copper-slate in Germany, described in Ure's *Dictionary of Arts*, &c.?—4. Mr. W. Birkmyre, having expressed the hope that other chemists, as well as smelters, would join in this discussion, I was glad to see his name, as well as to find his results, in a different working, coincide with my own; I hope he will not lose sight of our investigation.—5. "A Roasting Man's" communication is just of the kind I am in want of. The adaptation of calcination to the ores, appears a reasonable principle of practical smelting; though, upon the specific improvements recommended by him, the mere laboratory chemist must not pretend to judge.

When at Swansea, in 1841, I had opportunity of examining (at least) three varieties of the calcining process:—1. The ordinary method on the large hearth, as described by Mr. Vivian.—2. A patent method, in small close hearths.—3. Mr. Brunton's method, with revolving hearths; but I do not remember that they were indiscriminately adapted to particular ores. In his own department, the roasting, I found as many variations. Will he tell us what advantage it is to the refining, to have the metal roasted up to *blister* pitch, and what harm a little sulphur does in the refining-furnace? Whether the intrinsic difference between this and the lower degrees, or pitches, consists merely in the proportions of sulphur, or that some alloy is thus oxidized, so as to slag off easier in the refinery? and, if the latter, whether any specific metals, and which?—and, consequently, whether the roasting may be advantageously adapted to the particular qualities of black copper, as the calcination to the ores? The date, 1836, quoted in his letter, was not even mentioned in my second—1832 was given as the period when the complaints had greatly increased; but they began very soon after the introduction of copper sheathing, the first case known to me being by Lord St. Vincent—not a man of frivolous objections.

Last, and not least, "M. W. B.," on the analyses of ores. If Sir Charles Lemon's noble proposition for a mining school at Truro had been fostered, this practice would, I think, have been begun long ago; nor can such a school at the Museum of Economic Geology (desirable as it is), be followed by such benefits, either to the mines or the students, as amongst the mines themselves.

The work would not be difficult. By melting the calcined ore sample with borax only, all the reguli will separate, in a good form for analyses. If much oxide, or metallic salt, is present, sulphur may be added, alone or in combination, to regulate them. The proportion of sulphur in the ore may be easily determined by a separate operation. The earthly matter would hardly need analyses—its fusibility and fluxing power being more readily ascertained and regulated by direct experiment; but the metallic contents may not only guide the mixing and smelting process, and indicate the use for which the product is best suited, but also enhance the profit to all parties. Such analyses should be performed—not by general chemists, however skilful and experienced, but by those, whose practice being limited to this specific branch, have their heads and hands always in it. Perhaps, the best way would be to have such a chemist, also a competent mineralogist, in every principal assay-office; and if "M. W. B." will keep the subject alive, let us hope he may in time benefit the mining as well as smelting interests. From "J. J." I hope to hear in a future Number.—W. PRIDEAUX: Sept. 1.

##### COPPER SMELTING.

SIR,—In your remarks upon the matter of my recent letter on this subject, you have erroneously omitted a cipher, in estimating the quantity of copper manufactured during the past 48 years—it stood in my letter 1,000,000, not 100,000 tons, I believe that 1,000,000 tons is less than the actual quantity smelted within that period; and I have been equally lenient in estimating the proportions of iron and sulphur, disregarded, and, therefore, wasted in the production of this quantity of copper. I may have underrated the waste, but I am confident that no one can, with truth, tax me with the slightest exaggeration on this head. I am equally confident, and prepared to show, that both iron and sulphur may be rendered available, so that it will follow, that they have been, and are, wasted. The copper smelters are thoroughly versed in their business, which is to extract marketable copper by certain processes from copper ores. Their trade has been a lucrative one; their processes have been improved, though not materially altered, and have received that force of habit, which time always confers, and which prejudice also favours. They are doing well in their business, and they are neither ironmasters, nor yet manufacturers of sulphuric acid. They do not value the waste of iron and sulphur, because they have never felt it to be a waste—in short, they are content to remain as they are. Whether this is a sign of wisdom or of folly, I leave it to your readers to decide. The owners of the Newcastle collieries passed for able and intelligent men, and nobody complained, because millions of tons of the finest small coal in the world were devoted to burn in vast heaps, instead of being converted into excellent durable coals. Sir J. J. Guest passes for an able and enlightened ironmaster, yet he suffers the products of combustion to pass off at his furnace mouths, to the amount of 50,000*l.* per annum, which, as a capitalist, he might easily secure; yet no one taxes him with either folly, or the reverse. So mighty is the waste from all the blast-furnaces in the kingdom, taken collectively, that I should be loath to publish my calculations on this subject, lest I should be taxed with harbouring a wish, to throw ridicule upon a highly-intelligent body of men. There is another waste which takes place in the smelting of copper-ores on the present system—viz.: the consumption of 18 to 20 tons of coal per ton of copper; were this quantity reduced to 6 or 7, as it would be on the hot-blast system, it might possibly become advisable to carry coals to the copper ore, instead of the copper ore to the coals. For the sake of the unfortunate copper miners I could wish to see this improvement effected. The copper smelters are, no doubt, rich enough to retire from business, and live comfortably; but the Cornish miners have nothing to fall back upon. "A Roaster Man" estimates the iron and sulphur in the Coburn ores at 40 per cent. each; so, here we have 56 cwt. of iron and 56 cwt. of sulphur wasted, for every ton of copper made from this ore, and this is the statement of one of the initiated! Of course he

knows far better than I how to estimate these little useless impurities, amounting only to 80 per cent. upon the ore. Truly, the new company has a fertile field open before them, when, in addition to each ton of copper which they purchase, in the shape of Cobro ore, they may receive, as a gratuity from the miner, 56 cwt. of iron and 56 cwt. of sulphur—the latter alone equivalent to 140 cwt. of sulphuric acid, worth 21*l*. all which valuable material is now classed under two denominations—viz.: the slag, and the poisonous exhalations of the copper-works. Who would be a copper miner, and who would not be a copper smelter?

Coleford, August 28.

ROBERT MUSHET.

#### THE COPPER TRADE.

SIR,—For a long period the question has been agitated in the mining world of forming a copper smelting establishment, which, at the same time that it would return remunerating profits to its proprietors, should, by a due system of economy in its working and management, smelt the ores at such a reasonable rate, that the smelter would receive a good interest on his capital, while the miner obtained a fair price for his ores. This, I believe, in one instance, was tried some years since and failed, principally through the directors, instead of attending to their legitimate business, embarking in extraneous speculations. At present nearly the whole of the copper trade is in the hands of a few capitalists in Swansea, who, being without any competition, are enabled to purchase the ores from the miner at the price and standard they think proper to fix, and, at the same time, increase and decrease the price of copper to the consumer as best suit their own financial arrangements.

While free-trade has made such rapid progress in every other branch of industry—while every business in England has been exposed to such fearful competition, as has been the case within the last few years—it is strange and anomalous that this gigantic leviathan of monopoly, oppressing one of the most extensive interests in the kingdom, has been allowed to rear its Hydra head without molestation, or any attempt being made to shake off the incubus, which, for the enrichment of a few individuals, has injured thousands. That the extravagant smelting charges, and unfair price given by a standard which has no fixed rule to guide it, has even been detrimental to the smelting interest itself, the facts of the establishment, within the last few years, of foreign smelting-works, on the English method, is a sad but convincing proof. It is true, that owing to inefficient hands, sent from Swansea in the first instance, the foundation of these establishments have been very costly, entailing, in the first years, considerable loss to their proprietors. Experiments have, however, been tried, and difficulties overcome—so that at the present moment, although their fuel has to be brought from England, and is four times as dear as that consumed in Swansea, they are making handsome profits, are raising native smelters at a cheaper rate, to compete with our own people, and who eventually, by the lowness of wages, will drive them from the country where they have settled. The oldest of these works has not been in existence for a longer period than 10 years; and to what cause are we to attribute their establishment? Any one at all acquainted with the circumstance of their origin cannot but be alive to the fact, that they were erected in self-defence by the proprietors, as a protection against the grasping and extortionate profits of the Swansea smelter. Aware of the difficulties, and fearful of not being able to penetrate the arena of that almost impenetrable mystery which shrouds the operations carried on in Swansea, in the first instance, they shrunk from the gigantic task which they imagined they had imposed on themselves; and it was only stern necessity, and the almost impending ruin they saw hanging over their heads, which must have caused them to close their establishments, that induced them to grapple boldly with the evil, to slip the leading strings in which they had been so long led, and emancipate themselves from the trammels imposed on them by the English smelter; and I fearlessly assert, that could the proprietors of any of these works have obtained a fair and reasonable price for their ore at Swansea, the idea of erecting their own establishments would have never entered into their heads.

For some years a cry has been raised, and an agitation carried on, to delude the miner, that his distresses have been caused by the increased importation of foreign ore, and duties have been levied to protect the home interest; the fallacy of this has been long since developed, and I believe, with the exception of a few prejudiced individuals, the idea is almost exploded. It surely would have been better that foreign ore should have been smelted here, giving employment to our own labourers, than that foreign copper should forestall us in the continental markets. That the influx of the rich foreign ores has had some influence on the price of the poor Cornish ores cannot be doubted, but this is a mere bagatelle compared to the dictatorial and systematic oppression with which the smelter has so long governed the miner; and it is inconceivable, that any body of men, for so long a period, should have been so dead to their own interests—so buried in lethargic somnolency—as to allow a clique of interested individuals to purchase their produce at their own prices, and by a standard, as I before observed, without any definite guide—in fact, being a sliding scale, moved according to their will, and subject to their caprice. You have so often exposed the enormous profits which they have been in the habit of obtaining, that were I to enter into a detail of calculations here, it would be a work of supererogation, and a trespass on your space, which I consider totally uncalled for; the statistical tables, which can be culled from your Journal by any person who will take the time and trouble necessary for that purpose, are a sufficient confirmation of my assertion. That establishments have not been formed before, I consider can only be attributed to the apparent difficulty of carrying the operations successfully through, and the supposed immense outlay required before a return of the capital can be obtained; neither of these causes have virtually any bearing on the question. With regard to the first point, every one who has visited Swansea must have observed the secrecy and mystery which envelope the operations carried on there, apparently with the purpose of impressing the visitor with the importance and difficulty of carrying the processes through the several calcinations and meltings, until it appears, to his astonished view, as refined copper. The working smelters, many of whom are enabled, if left to themselves, to perform every operation, are so mystified by those above them, that they have arrived at the conviction of the difficulty of the important task in which they are daily employed, and are proportionally vain and conceited of their abilities. In no place is this mystification carried on to a greater extent than in the refineries—indeed, to use a vulgar expression, it may be said there to reach the acme of humbug. As soon as the furnace is supposed to be ready, the refiner, taking a small assay of copper from the furnace, rushes into a side room (which is always kept locked at other times), to break and prove his assay, carefully closing the door after him; this done he mysteriously comes out, throws it again into the furnace, taking care that none of the workmen see the grain of the metal—fearful, if so, that they should discover the secret of his art—the workmen, in the meanwhile, looking on with wondering eyes at the performances of this clever individual. Poling, or covering the face of the copper with charcoal, is then ordered, as the case may be, and this farce is repeated until the refiner thinks proper to order the men to ladle out. The copper which has been produced at the foreign works alluded to, as well as that refined on the English principle, at the different Government and other works, has been found to be as good, tough, and malleable, as any produced at Swansea; yet in none of these works are these artifices and mystifications practised, and their refiners are foreigners, who have never been to Swansea—have succeeded Englishmen in these situations—have enjoyed them for some years, and no complaints have yet reached the proprietors of the bad quality of their metal, and the assays can be seen by any one who pleases to inspect them.

At this present period, no company will find any lack of obtaining competent agents, who perfectly understand their business, and through them they will be enabled to select an efficient body of workmen, to carry through the processes, without any danger or difficulty. There can be no doubt, that the formation of such a society is not an easy task—that the monopolists, to preserve their own interests, will throw all obstructions in the way of any independent body, who have the presumption to attempt a rivalry with them, or obtain a small portion of that *spolia opima*, on which they have so long fattened and gorged. Obstacles will arise in the engagement of good workmen—intimidation may be used, to prevent men joining any establishment—bad and unsteady men may be thrust forward, with a view to embarrass any new concern in its infancy. These difficulties, however, if manfully grappled, can be combated with, and soon overcome. The processes, without reference to the recent improvements which have been introduced—I mean those at present practised at Swansea—are straightforward and easy; and due care being given to the selection of a few competent and sober workmen, no impediment need be apprehended, or any fears be entertained, as to a successful prosecution of the operations, or a profitable result of the speculation. The capital required to carry on such an undertaking would naturally depend on the size of the

plant, and the extent to which the directors proposed to carry on their operations. The present cost of building a single reverberatory furnace is not above 95*l*, and this will last for several years, without requiring such extensive repairs as will injure the main body of the furnace. The conversion of 100 tons of ore into copper would require, from the first to the last process, on the average, about three weeks. It would be then marketable; and if a favourable opportunity for the sale was not arrived, money could always be obtained on the stocks on hand, so as to cover any fresh purchases of the raw material, which would be daily progressing to its ulterior and more valuable development. Some of the recent improvements, however, will, I believe, if practically carried out, supersede, in a great measure, this delay; and, by reducing the interest of the dead capital, render the burdens of the company much lighter than at present is anticipated. As so many calculations have already been published of the cost, profits, &c., I shall not further trespass on your valuable columns at present. In making these brief remarks, I have not been animated with the desire, nor have I the vanity, to imagine, that my feeble pen could write anything detrimental to a particular interest; but a love of justice, and a sincere wish to endeavour to advance the mining interests, however weak my efforts may be, has induced me to raise my humble voice, in hopes that the attention of those interested may be called to this important question, that some steps may be taken to remedy this crying evil, so that one party may not be aggrandised at the expense of the other, and that both miner, smelter, and consumer, may have a clear stage and no favour.

August 29.

#### PURE IRON.

SIR,—I have read with much interest the various papers on metallurgy, by Mr. J. Mitchell; but his remarks in your last Number upon pure iron, are, I imagine, somewhat erroneous. Without attempting to consider what may, or may not, be the effect of hydrogen gas in contact with deoxidized iron—though I have reason to believe that the effect would, at a red heat, be permanent and considerable—I shall observe that, admitting the purity of the spongy iron thus obtained, still its fusion in a crucible, placed in an air-furnace, could not be effected in the manner described by Mr. Mitchell, without the iron imbuing a sufficient current of gaseous carbon to constitute pure soft malleable iron, differing from the hard, brittle, and silvery white substance which I have described as pure iron, free from carbon; and I have not a doubt that the button of iron thus obtained by Mr. Mitchell, was, in fact, pure iron, alloyed with carbon, to the extent of, perhaps,  $\frac{1}{100}$ th part of its weight; and that this carbon had penetrated the crucible in a gaseous state, and had entered into combination with the iron at that peculiar state in which it exists in bar-iron and steel. What that peculiar state may be, I leave it to chemists to consider and ascertain. It may be objected that, if the soft iron had contained the smallest dose of carbon, the existence of the latter could have been ascertained by analysis. This I deny; and on the ground that chemical analysis has failed signally in assigning the amount, and the various conditions of carbon, as associated with iron. There is no chemist in existence by whom the amount of carbon in any kind of iron has been accurately assigned, or its condition, or rather variety of conditions, satisfactorily explained. Discrepancies, amounting to 2 per cent. of carbon, have occurred in analysing grey iron, reduced to the state of dust, to secure homogeneity, under the hands of the most expert manipulators, operating upon a portion of the same sample, unknown to each other. I am not, therefore, surprised that Mr. Mitchell should not have been able to detect the very small dose of carbon which would suffice to malleabilise and render very infusible the brittle pure iron.

I next come to notice the singular expedient of using a crucible lined with peroxide of iron, in which to effect the fusion of the spongy iron. First, it is a well-known fact, that peroxide of iron, heated in a close vessel, is gradually protoxidised, and, therefore, I presume that oxygen gas must be set at liberty. Now, to surround the pure iron with a lining, which, by mere application of heat, is made to give out oxygen, appears to me to defeat the end in view—for this oxygen must, of necessity, be in contact with the imbedded pure iron. Again, since the oxide of iron is in contact with the sides of the crucible, how is it that during the three or four hours of intense temperature to which it is exposed, it does not enter into fusion, forming with the clay, sand, &c., of the crucible, that active penetrating glass of iron, which no crucible of clay can long retain, even at a much lower degree of temperature? Also, how is it that oxide of iron, which may be deoxidized at a low white heat, by contact with gaseous or other carbon, is preferable, as a non-yielder up of oxygen, to the sides of a clay crucible, formed of sand and clay, neither of which, at a similar temperature, yield up one atom of their oxygen?—or how is it the decarbonating powers of clay and sand, so ably shown in my father's works, are consistent with an apprehension of these earths becoming deoxidized, in contact with pure iron, destitute of carbon, and alloying themselves to that pure iron? No doubt, glass of iron would in this case be generated, and would speedily destroy the crucible. Admit for a moment that the pure iron could deoxidise the earths of the crucible, what follows?—Why, oxide of iron would be formed, and this oxide would instantly enter into fusion with the earthy matter of the crucible to form glass of iron; whilst the deoxidized portions of the earthy bases would go to increase the weight of the result; but this is not found to be the case by experiment. I am curious to learn in what state the lining of peroxide of iron was found after four hours of exposure to a heat sufficiently intense to fuse soft iron. That gaseous carbon can penetrate the sides of the most accurately closed crucible, is a fact which admits of no dispute; for iron may even be converted into steel by long exposure in this kind of close vessel, surrounded with ignited coals.—ROBERT MUSHET: Coleford, August 28.

#### MODE OF EXTINGUISHING FIRES AT SEA.

SIR,—As the danger from fire at sea is attended with so many appalling circumstances (of which we have had a recent instance in the fatal and melancholy catastrophe of the *Ocean Monarch*), I beg, through the medium of your widely-circulated Paper, to submit for the public consideration, and especially underwriters, the following plan, as a cheap, simple, and efficient method of preventing the occurrence of such accidents. It occurred to me in the summer of 1846, during a casual conversation with Dr. Montgomery, superintending surgeon, H.E.I.C.S., then on the eve of returning to India. The principle is as follows:—

Flame or combustion cannot go on where there is carbonic acid gas. This is one of the elementary principles of chemistry. It may be shown in various ways. A lighted taper, plunged into a jar of carbonic acid gas, is instantaneously extinguished; or, if we take the glass of a common Argand burner, and close the upper end of it by a flat plate of glass, or even by a piece of card or pasteboard, firmly, so completely as to prevent any current of air through the tube, on introducing for about an inch or so the flame of a candle at the outer extremity (the glass of the Argand burner being held upright) it will shortly—usually in the space of little more than a minute—be extinguished, merely by the accumulation of carbonic acid gas, produced by its own combustion. The production of carbonic acid gas is completely at our command, for on adding dilute sulphuric acid to chalk, we can set at liberty, in the space of two or three minutes, enormous volumes of the so-called fixed air. The cost of material for a ship of 1000 tons would not exceed, at the utmost, 15*l*. or 20*l*. sterling. By means of tubes proceeding from the upper deck, in connection with a cistern containing the dilute sulphuric acid, to the quarters below, where there is most likelihood of danger from fire, or moveable hose, made of gutta percha, which can be introduced into any part of the vessel, the oil of vitrol, previously diluted with water, can be at once poured over the chalk, which is thrown down in the place where the fire rages, and immediately, the carbonic acid being set at liberty, the fire is extinguished; for combustion cannot go on in an atmosphere of carbonic acid gas.

I have been much occupied experimenting on this subject; and I find that from 3 tons of chalk as much carbonic acid may be obtained as will be sufficient to completely fill a vessel of 1000 tons burthen. The expense of laying the tubes will not exceed 30*l*. or 40*l*.; and, once laid, there is no further trouble or expense. I may observe also (but experiments are at variance on this subject) that it is not requisite to have an atmosphere absolutely consisting of carbonic acid gas to extinguish flame, for some experiments show that a taper does not burn in an atmosphere of three parts atmospheric air and one part carbonic acid gas. Lightning conductors are provided for ships—surgeons also to take care of the health of the crew—assuredly no expense (and it is but a trifle) would be grudged to secure a ship and its passengers from the contingency of such a melancholy mishap as that of fire. If this method will do, and there seems to be everything in its favour, all our emigrant ships, indeed every ship, ought to be secured against a calamity which really must be held as the most dreadful which can occur to a vessel at sea.—W. REID, M.D.: Salisbury-street, Strand, Aug. 30.

#### MANUFACTURE OF SULPHURIC ACID.

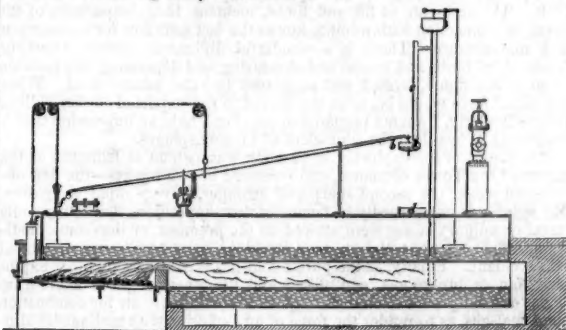
SIR,—In your paper of the 19th instant, it is stated, by different correspondents, that M. Schneider, a manufacturing chemist, has invented a method of making sulphuric acid, without the aid of nitric acid, or any nitrate. That discovery, I beg to say, I made some time ago; and I have been in the habit of making, from time to time, small quantities of sulphuric acid in the Royal Dublin Society's laboratory, without the intervention of nitric acid, nitre, nitrate of soda, &c. Those facts are now well known to the principal vitriol manufacturers in Dublin, to whom I communicated them; and they are now, I believe, availing themselves of that information. May I request you will be good enough to insert this note in your next publication?

Dublin, August 24.

EDMUND DAVY,  
Professor of Chemistry, Royal Dublin Society.

#### NEW APPARATUS FOR THE PREVENTION OF BOILER EXPLOSIONS.

SIR,—I am in the habit of reading your Journal, and seeing your wish to serve the public as far as possible, I beg to hand you this sketch of a self-acting safety apparatus for steam-boilers, and if you should think it self-insertion in your valuable Journal, I should be very glad to see it there. I applied the first one to our boiler, and it has not been altered or meddled with since the first day of its application. I have tested and tried it in various ways—such as stopping the engine, keeping the fire-door shut, and adding a considerable amount of extra weight upon the safety-valve—and, under all circumstances, both separately and combined, its certainty of action in opening the valve (wide) at the proper and intended point of pressure, is such as to merit for it, in these exploding times, all the publicity it can have, and be the means of preventing such dreadful explosions, and of saving many valuable lives.



The following is a description of the diagram:—a, the safety-valve, weighted as usual, but with its lever prolonged on the opposite side of the fulcrum; b, a bucket, having a small tail valve, and suspended from the end of the safety-valve lever; c, a pipe communicating with the ordinary feed-pipe; d, a receiver for the water discharged from the bucket; e, a damper for admitting air to the fire; f, the ordinary water-gauge.

The action of the apparatus in the case of increased pressure, is as follows:—Water from the boiler is forced up the feed-pipe, and descends by the pipe, c, into the bucket, b. The increased weight of b then draws down the lever, and that opens the safety-valve to such an extent as permits an unimpeded flow of the full volume of steam, corresponding to the area of the valve, instead of (as in the case with the ordinary valves, whether self-weighted or otherwise) bearing on the steam, and preventing its free egress. The depression of the valve lever also raises the damper, e, and thus checks the fire. On the descent of the lever, the tail of the valve in the bucket, b, coming in contact with the receiver, raises the valve, and permits the water to escape; any small quantity, not thus got rid of, drains through a small hole in the bucket. Should the boiler become short of water, the air-damper, e, is raised by the depression of the float at f.

Chatham-place, Manchester, August 30.

JOHN MANLEY.

#### THE EXPLOSION AT EAST MORETON COLLIERY.

SIR,—The above colliery, at which a recent explosion occurred, sacrificing 15 lives, is described in your Journal as perfect in ventilation; it is possible it might be so—for, being a new colliery, there had not been sufficient time for the formation of any extent of goaves for the collection of gas. The cause of the explosion I take to be as follows:—In opening a new colliery, with two pits connected with each other, there must, of course, be good ventilation; as, however, the coal is taken away, the space gets larger by the regular operation of the workings; and, in time, the roof begins to settle down, and leaves a space between the strata of which the roof is composed, and that immediately above it; that space soon fills with gas; and, although the quantity at first may be small, in a short time it will fill the whole; and, the upper strata settling down upon the lower, forces the gas out into the workings, and which I have no doubt was the cause of the above explosion. Colliery viewers should always be on their guard, when the first weight or breaking of the roof takes place in a new colliery, for other reasons than the fear of fire-damp.

Blaenavon, August 30.

T. DEAKIN.

#### EXPLOSION OF ELASTIC MEDIA.

SIR,—Whilst craving a little more space in your scientific columns, to pursue the consideration of the dynamic relations and explosive forces produced by, and incident to, gaseous evolution and combination, I must beg leave to observe, that there is a wide difference between the nature of the explosion of gunpowder and of combustible gases, taking pure oxygen and hydrogen, in physical mixture, as the type of the latter. This difference arises from the facts—that, in the former case, 30 cubic inches, or 1 lb., of diamond powder becomes, by igneous re-solution, 9700 cubic inches of permanent gases, at the temperature of 60° Fahrenheit, consisting of nitrogen, cyanogen, carbonic oxide, and carbonic and sulphurous acids, with traces of ammonia and bioxide of nitrogen, provided the whole charge be ignited, whereas 30 cubic inches of hydro-oxygen mixture becomes 30 cubic inches of watery vapour, or steam, instantly evanescent as to its elastic constitution. The heat of ignition of gunpowder being about 1860°, or melting point of silver wire, will give a temporary expansion of four times the original volume of 325 atmospheres, equal to 1300 atmospheres, under favourable circumstances, which has plenty of time to exert its enormous force ere the refrigeration to 325 volumes can injure its effects; whilst that of the oxy-hydrogen mixture (not coal-gas) consisting of 30 in. of hydrogen, acting as a sponge to 15 in. of oxygen, being instantaneously diluted by its temperature of ignition, equal to the fusion of platinum wire, or about 4680° Fahrenheit, to 30 cubic inches  $\times$  the quotient of 4680°  $\div$  Rudberg's equivalent of double volume 493°, augmented by 4.5 = the decrease in geometric ratio for high temperatures = 420 cubic inches, whence the effective expansion, acting for an instant only, in the case of O + 2 H, will be 420  $\div$  30 = 14 atmospheres, which, under ordinary circumstances, is instantly reduced to vacuum, by refrigeration and condensation.

Now, the reason why the explosive force of coal-gas with common air, whose circumstances, from the presence of permanent gases, seem to simulate that of powder, yet be far less than that of pure gases, is, that out of 13 cubic feet of the mixture, there is but 1 ft. of coal-gas (consisting of 2 ft. of hydrogen + 1 ft. of carbon vapour, with about  $\frac{1}{2}$  ft. of vapour, formed of 4 H + 4 C), and 2  $\frac{1}{2}$  ft. of oxygen, that have anything to do with the evolution of heat, upon whose action the expansion of explosion essentially depends, making 3  $\frac{1}{2}$  ft., leaving 9  $\frac{1}{2}$  cubic feet of nitrogen to be expanded by the heat developed by the really explosive ingredients. The 2 vols., or feet, of oxygen combine with the 1 ft. of coal gas, the 3 oxygen going to the heavy carburet, producing, in toto, 12 cubic feet of carbonic acid gas and 2.1 cubic feet of common steam, the efficiency of the explosion being reduced from 3.3 vols.  $\times$  14 = 44.8 to this sum  $\div$  11.5 vols. of gaseous media (including the carbonic acid), to be equally heated, and thus abating the explosive effect. Thus, then, the real explosive force due to 1 of coal-gas + 12 of common air, amounts only to 3.9 atmospheres, under the most favourable circumstances.

Now, Dr. Arnott said, on the inquest, that "the explosion of powder and gases was the same, and that one cubic foot of an explosive gaseous mixture was equal to half-an-ounce of gunpowder;" and, as 539 of an ounce of powder is a cubic inch, 1600 cubic inches of mixed gases should, according to the doctor's estimate, be the equivalent of one cubic inch of powder. But, as 1600 cubic inches of mixed pure gases (i.e., 1600 of hydrogen + 800 of oxygen) becomes, by explosive expansion, 22,400 cubic inches, and anon, nearly perfect vacuum, and the cubic inch of powder expands to 1300 in., we have an opportunity of seeing the full force and

value of eminent opinions, since 1 cubic foot of 2 vols. hydrogen with 1 vol. of oxygen, really finds its explosive equivalent in 8.5 ounces of gunpowder, in place of the doctor's half-ounce of powder, whose equivalent in coal-gas is 1 cubic foot. We begin to think, with Shakespeare, that "Motive" is the choicest wear," both in dress and opinions, when celebrated names can confer their prestige on such public nonsense.

About 1836, it was my pleasure to investigate the projectile forces of gunpowder, explosive gaseous mixtures, compressed air, and fulminic salts; and, amongst other facts, I discovered that these detonating bodies, although possessing enormous forces, were defective in the too instantaneous nature of the development, and too rapid abatement of the force, in consequence of diminished elasticity in the newly-formed gases, by defect of latent heat and production of cold. In the use of the oxy-hydrogen explosions as an impelling agent, I found that a ball of box wood, 1 in. diameter, and shot to weigh 5 oz., could only be projected to a distance of 170 ft. from an elevation of 10 ft., and that the same range could be obtained by common air, compressed to 8 atmospheres, as in the chamber of an air-gun; whilst a leaden bullet, with the same discharge, could be projected to a distance of 600 ft. Reasoning, therefore, with the aid of these data, and assuming that the victim (Mary Bentley) was the projectile which damaged the iron rails, and that the specific gravity of box wood, and that of a clothed animal body, would come within the scope of parity of reasoning, although the resistance would be much greater in the latter case, we can see, that an explosion of coal-gas could not possibly produce the effects observed in Albany-street, as not being competent to project with sufficient force to produce mortal fracture of the skull of a girl of fifteen by impact, at a distance of 30 ft. Whether the head of the girl bent the iron rail, or suffered a fracture against any other resisting body, or otherwise, there can be no doubt that an initial force would, for this end, be requisite, equivalent to the impact of a perpendicular fall of at least 50 ft. The accidents to life and limbs, incident to an experience of 20 years, in connection with mining, attests the fact sufficient for its assertion and maintenance. There is a wonderful difference between breaking bones of the limbs and trunk, and fracturing and depressing the parietes of an arched dome, formed and supported like the human skull. What the initial force would be, to be equivalent to the impact of 80 lbs., falling perpendicularly, I am not prepared to say, but I have an impression that it would not be less than the equivalent of 11 atmospheres.

The report of the explosion in question was as loud at Islington as the report of the Tower ordnance, and consisted of two reports—the first obtuse and weak, the second sharp and stronger, in very rapid succession. My opinion is unreservedly in favour of the supposition, that either some naval or military stores were stowed on the premises, or that some modifying influences, not usual on such occasions, have been a concomitant of this accident. Finally, as the purest coal-gas is considerably more explosive than an impure gas, and oil-gas and illuminative gases, made from bones and fatty animal matters, require so much more air for combustion than coal-gas, as to render the force of an explosion with such media altogether *effete*, how ridiculously ignorant does the behaviour of the servants of the antagonist company seem, by attempting to create a prejudice in the public mind against the other company, by the insinuation, that the "explosion in Albany-street was a consequence of the impurity of the gas supplied by the London Gas-Light Company." W. RADLEY, Ch. E. *Vauxhall, August 28.*

#### DEAN FOREST.

SIR.—I have just seen a letter, inserted in your Journal of Saturday last, to which my attention has been directed, signed "Robert Musket," and containing either gross misstatements or perversions of the truth. As the executor to whom allusion is made, I feel it due to my own character to give Mr. R. Musket's false assertions an immediate contradiction; nor can I discharge this duty to myself, without expressing my surprise that a respectable paper, like the *Mining Journal*, should commit itself by consenting to publish matter strictly private and personal, upon the *ex parte* statement of one who has already deceived its Editor by the insertion of libellous matter, which he is now seeking to justify, by calling in question my honourable conduct and sense of justice. In other words, to exculpate himself, he maligns my character, and would present me in a most unfavourable aspect before your readers. I ask, Sir, whether he is justified in this writing, or you in publishing his letter, after the full retraction made by him of his calumnious charges against Messrs. Atkinson, Cliffe, and myself, and the expression of sorrow, upon your part, that you should have been induced to insert them in your columns without a due consideration of their tendency? As far as I am concerned, I am obliged to say, the letter in question, however inserted, whether under the form of an advertisement or not, amongst your correspondence, is but a repetition of the offence.

1. I deny that the property bequeathed by the late Mr. D. Musket to his three sons, of which Mr. R. Musket possesses a third, yielded a net income of 3000*l.* per annum for many years, or that the management could be strictly called a joint-management.

2. Mr. R. Musket was not left sole manager of this property—the subject is not once mentioned in his father's will; and I have letters of his own, in which he treats with the executors as to the terms upon which he is willing to be their manager. The fact is, the property is left in trust to the executors to carry on, as they shall think best, for the benefit of the legatees.

3. Both the executors, not one, dismissed Mr. R. Musket, for reasons which I decline stating in this place, by the direct and explicit advice of their counsel.

4. Mr. R. Musket would have your readers infer that a bill was filed in Chancery, in consequence of his dismissal. That bill was filed by his brother, Mr. D. Musket, before his dismissal—partly because Mr. R. Musket was entrusted with the management by the executors—an arrangement in which he had no confidence.

5. I was not proposed to the Court of Chancery as a fit person to manage the property and collaterals. Mr. Musket had already, by his will, appointed me, in conjunction with Mr. Cliffe, to that office; but, in our answer to the bill, we both prayed to be relieved from our responsibility; at the same time we directed our counsel to state to the Court, that if neither of the three brothers should be appointed manager, we were ready to continue in office at a certain remuneration, to avoid the weightier expense of a receiver; and even then the arrangement was, that Mr. Cliffe was to undertake all active duties, and the general supervision of the estate, which he had no confidence in.

6. Mr. R. Musket accuses me of reducing himself and family to a state of absolute destitution, through my arbitrary or unbecoming measures. If he here alludes to his dismissal from the management, he must be aware of the strong reasons which rendered that step imperative; and he must know that he is driven, by his own conduct, to look to his other resources, and the rest of his property, for an income.

7. Mr. R. Musket is very well aware that no dividends can accrue to the legatees, until all the charges upon the estate, in the shape of liabilities and legacies, are liquidated; the executors have been very ready to pay the Court of Chancery, and not to the legatees; but I am not conscious of any question having been asked upon that point by parties entitled to the information, which has not been fully answered.

I must beg the insertion of this letter in your next Number, and regret that I shall not be in time for your publication this week.

3, Ireland-row, Mile-end, August 26, 1848.

#### DEAN FOREST—IMPORTANCE OF THE RAILWAY SYSTEM.

An important case of arbitration, connected with the trade of Dean Forest, in Gloucestershire, was opened at the Bell Inn, Gloucester, on Wednesday week; its object being to decide on the Justice of a claim for 41,000*l.*, as an equivalent for damages inflicted by the South Wales Railway Company on the property of Mr. Matthias, at Purton Pill, in the above county. The arbitrator is Mr. Clifton, surveyor of Whitehall-places, with whom is Mr. Bodkin, as legal assessor. Sir F. Theobald and Mr. Keating appeared for the company; Mr. Sergeant Wingham and Mr. Cooke for Mr. Matthias. Mr. Sergeant Wingham opened the case. He said, as long since as 1827 Mr. Matthias's attention had been called to the capabilities of Purton Pill as a railway port, he being largely interested in the Gloucester and Berkeley canal. He considered that to render this property profitable, it was necessary to enable vessels, on clearing out at Gloucester, to take back freights, by receiving on board cargoes of minerals from Dean Forest. The next point was the most convenient spot for accomplishing this object, and Purton Pill was chosen: this property was brought into the market in 1830, and purchased by Mr. Matthias, with the view to make it the terminus of a railway which he had in contemplation. This railway was to run through a portion of the forest unaccommodated with railway transit, and consequently unworried. Two applications to Parliament were, however, rejected; on this he resolved not to apply again, but to purchase his way up to the forest, a distance of three miles. In doing this he was obliged to proceed slowly, step by step, but he had never abandoned his intention of constructing the railway, until interfered with by the South Wales Company—the mode of construction of whose line completely extinguished the value of the port to Mr. Matthias. The estimated loss to Mr. Matthias was 71,000*l.* a year, which, at ten years' purchase, gave 710,000*l.* from which was to be deducted 30,000*l.* for construction, leaving his claim 41,000*l.* Mr. R. Grantham, F.G.S., of the Adelphi, was the first witness called, and stated that he was a civil engineer, and of opinion that the railway might be constructed at a very moderate cost; flag and building stone could be easily obtained of good quality; he calculated that from five acres of good coal, 850 yards on each side of the line, and the same distance beyond, not less than 26,750,000 tons of coal might be obtained; he thought, in the first year, 38,300 tons of coal, stone, and timber would be carried on the line, 106,000 tons the second year, and 178,000 tons the third; he considered Mr. Matthias was entitled to from 35,000*l.* to 40,000*l.*—A number of other witnesses were heard in support of the claim, which occupied the remainder of Wednesday and the whole of this day.

On the following day, Sir F. Theobald opened the case for the company. He stated it to be one of the most exaggerated claims which had come under his experience; the property consisted of 156 acres, and cost only 71,000*l.*, and Mr. Matthias had no right to claim on supposed future improvements, which might never take place. One piece of land had yet to be purchased, and Mr. Matthias was not sure of obtaining it; and how could he be sure of the license of the Commissioners of Woods and Forests for construction of the railway?—A number of witnesses were examined for the company, after which Mr. Sergeant Wingham replied; he reviewed the evidence, and dwelt at some length on the advantages of arbitration, where the arbitrator could have time to weigh well and sift the evidence, while a jury would have to decide on the spot, with no time for its due consideration. He contended there was no ground for supposing the commissioners would refuse their license for the railway. He fully supported Mr. Grantham's calculations, showing that he had only estimated the getting from two pits at 80 tons per day, while the manager had made arrangements for an output of 150 to 200 tons per day. At Purton Pill the largest collieries on any part of the Severn was carried on; in one season a quantity of timber, equal to 40,000 tons, had been disposed of at Purton, and yet the arbitrator had been told that this was the worst point on the Severn. It seemed to him quite impossible for the South Wales Company to offer anything like a substitute for Mr. Matthias's railway.

This closed the case, and no time was specified for the delivery of judgment, which will probably take a considerable time for a careful examination into the evidence adduced; we shall, however, be enabled to lay it before our readers when delivered.

#### IMPROVEMENTS IN OBTAINING AND APPLYING MOTIVE-POWER.

(Specification of patent granted to John Weston, of Portland Town, in the county of Middlesex, machinist, for certain improvements in obtaining and applying motive-power. Patent dated February 16th, 1848.)—Continued from last week's Journal.

##### PROPELLING CARRIAGES ON RAILWAYS.

To the axles of the wheels of the locomotive, and other carriages of a train, is affixed, depending therefrom, a piece, or baulk, of timber, of peculiar shape, composed of several pieces, or lengths, securely connected together; and to the vertical sides of which are affixed, by metal plates, pieces of elastic material, prepared by any of the means, or processes, in known and common use for rendering the same air-tight, and impervious to the action of steam. To the cross sleepers of the railway, a framing of metal is securely fixed; to this framing, brackets are attached, for maintaining, at certain distances asunder, metal rollers, which revolve upon axles—the intention of such rollers being to press the elastic material into and against the curved sides of the baulk of timber, for which purpose the peripheries of the rollers are formed of similar curvature, and are kept in forced contact by bolts and screws, which admit of the said rollers being adjusted to the greatest nicety. In connection with these rollers and the brackets to which they are attached, is a casting, which has two inclined surfaces formed thereon, for the purpose of raising certain mechanism brought into contact therewith, being arranged and combined in the following manner:—Cylinders of metal are connected together, near their lower ends, by pipes, one having a foot, or flap-valve, placed thereon; and the other having a cock—the foot valve being for the purpose of preventing the return of the water, or other liquid, contained in the one cylinder, after it has passed therefrom into the other cylinder, and the cock for the purpose of re-admitting such water, or other liquid, into the other cylinder. The one cylinder, which should be bored perfectly true, is accurately fitted with a piston, to which is affixed one end of a piston-rod—the other end being connected to a cross-head, which carries at its extremities vertical rods; to the lower ends whereof, rollers are connected by a pin, to which is also connected one end of each of certain rods—the other and opposite ends being secured to a tube, and the one rod to a cross-head—such rod having a slot formed thereon, for the purpose hereafter described; and this arrangement occurs at each of the vertical sides of the tube. The cross-head works through guides, and is connected to a slide-valve by a rod, which works in a stuffing-box, formed upon the valve-box, or steam-chest. For the admission of steam, or other vapour, there is an inlet pipe, likewise a jointed slide-valve, situate within the valve-box, or steam-chest; and, at the bottom thereof, an opening is formed in the bottom of the valve-box, corresponding with openings formed in the baulk of timber; and at each side thereof are levers, with suitable fulcra. To the upper end of one of these levers, one end of a rod is connected—the opposite end being connected to the jointed slide for actuating the same; and the lower end of one of the levers is connected to a rod, which extends throughout the entire length of the tube—a groove, being formed therein for its reception, as also for another rod, situate beneath the first-named rod.

The last rod works through a stuffing-box, formed upon the valve-box, in which works a slide-valve, attached to the first rod. Beneath this slide-valve, and immediately under it, is another slide-valve, to which is connected one end of a rod, the slide-valve being kept in forced contact with the under side of the valve-box by a forked piece, which presses against a valve near its outer edges and sides, the pressure of this forked piece being caused by a spring fixed around the spindle, which carries the said forked piece; another and similar valve-box, furnished with slides, is situate at the other end of the tube, such slides being connected to the opposite ends of the rods and levers before-mentioned. Into a groove formed in the baulk of timber a pipe is let in, the opposite extremities of which are connected to the valve-boxes, in which are formed openings for establishing a communication between the same. Education ports, or passages, are formed in the baulk of timber, communicating with the slide-box, through which the steam passes for exhausting the collapsible tube of steam, after it has passed one pair of the rollers, before it enters between another pair. The *modus operandi* of this machinery is as follows:—Assuming a train of carriages to be moving in a certain direction, and one end of the collapsible tube to be connected to the boiler carriage, or locomotive, and the communication between the boiler and the tube shut off, in order to impart motion to the train, the tube must be advanced, in any convenient manner, between one pair of the collapsing rollers, and the steam allowed to enter into the tube, through the ports, or passages, which will inflate it, when the pressure of the steam between the front of the rollers, will serve as the abutment for it to press against, and this end of the tube will cause the front end of the tube to be forced therefrom—the steam being prevented from escaping, by causing slides to cover the openings in the valve-box, which may be effected by the person in charge of the train moving levers, by means of a handle, into the proper position; the effect of which will be to shut off the induction passage at the opposite end of the tube, and to open the education, by which the air contained in that portion of the tube behind the rollers will be discharged therefrom; and by the time this end of the tube has passed the first pair of rollers, the steam which occupies the tube will be allowed to escape, and leave it in a condition to enter between another pair of rollers; and in this manner the tube will be passed successively from one pair of rollers to the next, and the train of carriages connected therewith be propelled. When it is desired to back the train, or reverse the direction of its motion, the same may be effected by the attendant moving the proper lever into the required position, which will have the effect of shutting off the communication between the steam-chest and parts situate at front end of tube, when the slide being simultaneously drawn back, and the education ports, or passages, uncovered, the steam occupying this end of the tube will press down the valve, and escape. The steam will now pass from the boiler along the pipe, and, by its pressure, will lift the hinged valve which covers the opening leading through the steam-chest, into the opposite end of the tube by the ports, when the pressure of the steam between the back end of the tube and the rollers, will cause it to move in an opposite direction, and effect the backing, or reversing, of the train.

The following means are employed for using the steam expansively in the tube:—The cylinder, having been filled, or nearly so, with water, or other liquid, and the piston at its lowest point, it will appear evident, that as this piston is raised by the means before described, the water, or other liquid, will pass from the cylinder, past the valve, into the cylinder, until the piston has arrived at its highest point, by which time the slide-valve will be forced back, and allow the steam to enter the tube. The wheels having now passed the top of the incline, being no longer supported, will descend by their weight, together with the cross-head and piston connected thereto; and the water, which occupies the space below the piston, being unable to return past the valve, into the cylinder, will be forced by the pressure of the piston thereon along the pipe, through the cock, into the cylinder, until the piston has arrived at its lowest point. A spring is passed around that part of the rod within the valve-box which presses against the slide, for the purpose of shutting it. This spring, when the valve is pressed back by the rising of the rods, is retained in that position by a catch, suitably placed for the purpose. Thus, it will be seen, that during the time the piston is descending, the valve will remain fully open, by reason of the slot in the rod passing over the ends of the cross-head, without producing any effect thereon; and when the end of the slot comes into contact with the ends of the cross-head, the catch, which before held the spring and slide, will now be disengaged, and the pressure of the spring, closing the valve, will cut off the steam; and the period of time which the piston occupies to perform its descent, will depend upon the extent to which the cock is opened, and must adjust each according to the extent of expansion to which it is desired to use the steam. When it is desired to check the progress of the train, the same may be effected by the attendant moving the lever handle of the tube into the suitable position, which will have the effect of closing the education passage at the opposite end of the tube; and the steam contained therein, being unable to escape until the pressure is in excess of the resistance, will operate as a cushion, to retard the passage of the tube between the rollers; or, instead of entirely closing the education passage, the lever may be moved to such an extent, as will only throttle the steam contained therein. In order to render the tube flexible, and enable it to pass the curves and crossings with facility, it is proposed to make incisions, or saw cuts, through the upper and lower portions of the vertical sides thereof—such incisions, or cuts, being made at equal distances asunder, and of nearly equal depths, which incisions it is proposed to fill with vulcanised India-rubber, or other elastic material, to prevent the escape of the steam, or other fluid; and further, to form the plates which secure the elastic material to the baulk, of the true shape, and properly arrange or dispose them. It should also be observed, that the distance between one pair of rollers and the next will depend upon the length of the flexible tube, which should be something less than

the distances between each pair of rollers, in order that the steam contained in the tube may be discharged before entering between the next pair of rollers—the impetus of the train being sufficient to carry from one pair of rollers to the next. Although the patentee has made mention of the use of steam, he wishes it to be distinctly understood, that he does not intend to limit, or confine, himself to the exclusive use thereof as a motive-power, as other elastic fluids, such as compressed air, may be employed with the like beneficial effects; in which case it will only be necessary to substitute, in the place of a steam-boiler, a reservoir, or reservoirs, containing the fluid to be employed as the motive-power.

Another arrangement for propelling on railways is set forth, which mainly consists in allowing steam from the boiler of the ordinary locomotive engine to pass into a tube, or pipe, situate between two lines of rails, and beneath the surface of the ground, the said pipe being surrounded by water, for the purpose of effecting speedy condensation of the steam; and there are suitable air-pumps employed, for exhausting the pipe of the condensed water and air; and, in connection with this exhausting main, there are mechanical arrangements, over which the train passes, and by which it is propelled, through the agency of certain parts attached thereto.

Patent-office and Designs Registry, 210, Strand, August 29.

#### THE ZINC-WORKS OF STOLLBERG.

The small town of Stollberg, about four miles from Eschweiler, is a centre of great manufacturing activity. Perhaps the most interesting establishments for strangers are those for producing zinc from calamine. This ore is found in great abundance at many spots in the neighbourhood. The best mines belong to the company of the Marquis de Sassenay, a French gentleman, who established here zinc-works on a large scale. After bringing them into full operation, he parted with the property to a company in the present year, but still retains the general management. Several hundred workmen are employed in the concern, and the German labourers are here again under the direction of French foremen and clerks. All moves with ease and rapidity in these large works, which stand on several acres of land. The buildings comprise ranges of furnaces of peculiar construction, with sheds and floors for the manufacture of retorts and bricks used in building the furnaces, a steam-engine and rollers for making sheet-zinc, besides dwelling house and extensive stabling. The whole is on a spacious and convenient scale. The extraction of zinc from the calamine, which is a combination of this metal with silica, lime, and carbonic acid, is still a difficult problem for the metallurgist. The ores of this company are rich, containing from 25 to 30 per cent, and yet by the Silésian method, which is here adopted, there is a loss of nearly one-fourth in extracting. Efforts are making to improve the process; the marquis has erected a separate range of furnaces, to give an English and a German chemist an opportunity of testing new modes, for which they have taken out patents. Hitherto the result of protracted trials has not warranted a change in the system adopted, which is the following:—A chimney of considerable width, but of moderate height, stands in the centre of each batch of furnaces. In the middle immediately adjoining the chimney, are two roasting furnaces, in which the ore is calcined. To the right and left of these are two pairs of reducing furnaces, or rather two large reverberatory furnaces, which are charged in the middle from above, and which are open at the side towards the gangways. In the space between the middle, or firing-place, and these openings, are placed a series of retorts of fire-proof clay, of elliptical shape, into which moveable necks are inserted that communicate with short perpendicular pipes, which fit into holes in the hearth-plate, under which openings like an asphalt are constructed. The ore having been well calcined in the roasting furnace, and turned from a carbonate into an oxide of zinc, is first powdered. The oxide is then placed in the retorts, or necks as they are called, and the furnaces are carefully closed with clay, and highly heated to throw off the oxygen in the shape of gas. One result of the great heat used in this process is, that a large proportion of the metal escapes with the oxygen, which finds its way through the neck of the retort and down the tube connected with it, where the reduced metal falls in small globular particles. The metal thus deposited is washed from the refuse that falls with it, and is melted in furnaces placed at the extremity of the reverberatory furnaces. The heat of these serves to remelt the zinc, that it may be cast into thin blocks, for rolling into sheets. The production of these works is estimated at 10 tons per diem. For this a consumption of seven times the weight of coal is assumed, and the manufacture of the metal could, consequently, only be undertaken where the coals are on the premises, as may here be said to be the case.

The quantity of zinc smelted in the Rhenish district is given for 1846 at 2616 tons. It has hitherto chiefly been confined in this province to an establishment belonging to M. Rheinhard, opposite Rulmet, and the French company at Stollberg. The mining lists, however, name no less than 47 zinc-works in all Prussia. Another large joint-stock company, established under the firm of the Société Metallurgique, was not at work in 1846. A considerable quantity of zinc ore (calamine) is obtained on the Prussian territory, which is smelted in Belgium. A curious diplomatic dilemma gave occasion to this. By the treaty of Vienna a certain portion of the frontier of Prussia towards Belgium was to run due north and south at a given point. When the measurement was undertaken, the commissaries started a difficulty about the variation of the compass. They could not agree; and at length it was settled that the magnetic pole should decide the direction of the line one year, and the real pole for the year following. It so happens that a portion of the mines of the Vieille Montagne Company, whose furnaces are at Liège, are situated within this debatable limit, and, in consequence of the arrangement of the Prussian Crown, draw the usual royalty from them in every alternate year. The whole of Prussia now yields about 10,000 tons of zinc, of which the greater part is smelted in Silésia. But the new companies establishing will, in all probability, very much increase the production, as they work with blende, or sulphuret of zinc, in addition to the calamine, or carbonate, which has hitherto almost exclusively been smelted. Zinc has greatly fluctuated in value, and is now low in price; but the first Rhenish smelters produced it at 15*l.* per ton—certainly with no great profit.

The new works at Stollberg, those of the Arnau and Oberhof Companies, and the last-mentioned M. Hillmann, are all managed by young Frenchmen, *directors of the Ecole des Mines* at Paris. Their knowledge appears to reflect great credit on that establishment; although, after some residence in the German mining districts, they are disposed to show great respect to the information of the educated German miners. These French companies have commenced their operations with full confidence in the power of a good manufacturing organisation; and, as they are well backed with capital, it is likely that they will realise their expectations.—*BANFIELD'S JOURNAL OF THE RHINE.*

#### ACCIDENTS.

**Morning Accident and Loss of Life at Beam Mine, near St. Austell and Roche.**—In the morning of Saturday last, at half-past ten o'clock, the bell of the splendid engine of this mine burst, with a tremendous explosion, carrying away in its force the roof of the engine, and shattering all the doors and windows—and, indeed, every thing within its reach to atoms. The engine-man (Philip Phillips) was killed on the spot; and a sampan (J. Hooper), who was standing near the spot, was so dreadfully injured, that he died within about two hours after. Had the accident occurred a few minutes earlier, the loss of life would have been awful, there being at that time more than 20 persons in the boiler-house. It appears that the engine had been stopped the afternoon previous, for the purpose of putting in some new work, and the fire allowed to go out, so that the furnace might be examined, which was accordingly done, late at night, by Mr. Webb, engineer; every thing appeared perfectly safe—the fire was rekindled early in the morning, and the steam was now about nine o'clock. The engine had been started a few strokes, but was stopped, to allow the pitmen to adjust a bucket, and while they were in the act of doing this, the boiler exploded. There were several men at the capstan, but they escaped with some slight scalds and bruises. The real cause of the accident has not yet been decided.—Our correspondent writes:—I have carefully examined the fracture, and find the crown of the tube burst, immediately over the fire-place, and have every reason to believe that they were raising the usual royalty from them in every alternate year. The whole of Prussia now yields about 10,000 tons of zinc, of which the greater part is smelted in Silésia. But the new companies establishing will, in all probability, very much increase the production, as they work with blende, or sulphuret of zinc, in addition to the calamine, or carbonate, which has hitherto almost exclusively been smelted. Zinc has greatly fluctuated in value, and is now low in price; but the first Rhenish smelters produced it at 15*l.* per ton—certainly with no great profit.

**Fatal Explosion of Fire-damp.**—On Monday last, another of these deplorable calamities took place at Messrs. Wood and Co.'s Colliery, Hindley Green, near St. Asaph, in which five persons were killed, and several others dreadfully injured. The names of the deceased are—J. Ashcroft, R. Goulding, W. Hampton, J. Tipping, and J. Houghton; the three latter were boys, 13 years of age; and J. Houghton had a pick-handle, 9 inches long, and 1½ inch diameter, forced into his body—he was alive when found, but died shortly after the extraction of this blunt missile.

**Midday.**—Thos. Jones, collier, was killed at Cwmbeigo Pit, by the fall of a stone.

**West Crumlin Colliery.**—W. Hebron was crushed to death by a fall of coal.

**Accident at the Furnaces, Park End.**—On Tuesday last, a lad, named G. Thomas, aged 13 years, living at Woodside Broom, and employed at the furnaces belonging to Arthur Montague, Esq., met with a sad accident. He was about putting a "hod" of iron ore into the furnaces, when he slipped down on his back; the hod, full of ore, fell forward from his head upon his left leg, and fractured the thigh bone.—*Gloucestershire Chronicle.*

**Rowley Regis.**—J. Hipkins was injured about the back and shoulders by a fall of 15*l.* while working in a pit belonging to Corngreaves New Colliery, under the British Iron Co.

**Brooch Colliery, Dudley Port.**—On Wednesday evening, about six o'clock, just as the men had done their work, a distressing, yet providential, occurrence—so far as two of the men are concerned—happened at Mr. Giles's. It appears that two men and two boys of the tacklers attached to the skip, unfortunately broke, precipitating the two boys, whose names are John Lewis and Thomas Nicholas, a son of the latter of the pit, to the bottom of the shaft. The boys, we hear, were killed on the spot, and their bodies conveyed to their late homes, to await a coroner's inquest. The names of the two men, who providentially escaped by maintaining their hold of the chain, which luckily they were grasping at the moment, are Richard Yarnold and Joseph Perry. We trust this distressing occurrence will operate as a caution to those whose duty it may be to inspect the apparatus by which the men descend and ascend the pits previously to their entering the skip, and thus, in all probability (not, however, that we have heard that any one was to blame in this instance), prevent a similar occurrence.

**Old Park Colliery, Dudley.**—On Thursday last, at No. 9 pit, a hantzman, named John Barker, met with a horrible death, under the following circumstances:—It appears that the duty of the unfortunate deceased was to land the skips as they were brought up out of the pit, and, when emptied, to return them down the pit, when, either from gross negligence or carelessness, he was in the act of pushing an empty skip, as the deceased no doubt thought, on to the "runner," which covers the pit's mouth, but which, unluckily, was not at the time over the pit, and the ill-fated man, together with the skip, were precipitated to the bottom of the shaft—a distance of 70 or 80 yards, and killed on the spot. The body of the deceased, which presented a frightfully mutilated spectacle, was conveyed to his late home in this town, to await a coroner's inquest. We hear the poor man has left a widow and large family to mourn his untimely and awfully sudden end.

**Bilston.**—As C. Pickering was coming up a pit belonging to Messrs. Baghill, at Caponfield, in a skip, drawn by a whiffey, the engine-man, James Hilton, ran on to the engine-house, and shouted to the people assembled "the bank," that the band was going over the pulley, and he could not stop it. Immediately the skip came up with the deceased, and two others, named Mason and Cooper, in it; it went over the pulley, and threw the deceased with great violence to the ground. He was dreadfully hurt—unable to speak, and subsequently died of the injuries received.

**Belgian National Railway.**—During the month of July, the receipts of the above line were 997,589*fr.*, making, for the first seven months of this year, the sum total of 6,726,293*fr.* 58*c.* The receipts of the last month, compared with those of the corresponding one of last year, show a diminution of 366,000*fr.* This decrease is chiefly caused by the great falling off in the number of travellers arriving at the frontier ports or towns.

### MEETINGS DURING THE ENSUING WEEK

BRISTOL AND EXETER RAILWAY

## BRISTOL AND EXETER RAILWAY

**BIRMINGHAM AND OXFORD JUNCTION RAILWAY COMPANY.**

**BIRMINGHAM, WOLVERHAMPTON, AND DUDLEY RAILWAY.**

**CORNWALL RAILWAY COMPANY.**

CALEDONIAN RAILWAY COMPANY.

## **X SOUTH DEVON RAILWAY—THE ATMOSPHERIC SYSTEM.**

**GREAT WESTERN DOCKS, PLYMOUTH.**

CHARING-CROSS BRIDGE COMPANY.

**GENERAL STEAM NAVIGATION COMPANY.**

IRISH WASTE LAND IMPROVEMENT SOCIETY.

**COAL MARKET, LONDON.**

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET

## NEW PATENTS.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

**STEAM TO INDIA AND CHINA, VIA EGYPT.**—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG. &c.

**NOTICE TO SHIPPERS OF GOODS AND PARCELS.**  
 For PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY'S  
 STEAMERS, TO INDIA, CHINA, COOKEA, AND SINGAPORE, SAILING direct to the Com-  
 pany's Parcel Office, at or before 6 p.m. on the 17th of each month, are FORWARDED  
 not less cost to shippers than when sent through any intermediate channel.—Cases must not  
 exceed 112 lbs. weight each for Aden, Ceylon, Madras, Calcutta, and China; and 40 lbs.  
 each case for Bombay. No package for India or China can, under any circumstances,  
 be shipped at Southampton, unless it be landed through the Custom-house, and placed along-  
 side the steamer on the 10th of each month.  
 Detailed particulars can be obtained on personal application or by writing.  
 Parcel Department, 122, Leadenhall-street, Sept., 1848.

**BRISTOL AND EXETER RAILWAY.**—At the Half-

**JAMES W. BULLER, Esq.,** in the chair.

**CALEDONIAN RAILWAY.**—At the Half-Yearly General Meeting of the Caledonian Railway Company, held in the Royal Hotel, Edinburgh, on Thursday, the 31st of August, 1848.

J. J. HOPE JOHNSTONE, of Annandale, Esq. (chairman of the company),  
in the chair. 40

5 That the declaration of forfeiture of the undermentioned shares be, and the same is now confirmed; and the directors are authorised to sell the said shares, and to apply the proceeds in payment of the calls due thereon, and the expenses attending the forfeiture and sale—viz.:

CALEDONIAN RAILWAY £50 SHARES.			
70	Shares, Nos. 34,082 to 34,151 inclusive	Nos. 35,090 to 35,094 inclusive	
0	" 15,801 to 15,859 "	" 5,517 to 5,521 "	
1	" 38,093	" 24,526 to 24,530	
5	" 23,161 to 23,165 "	" 3,436 to 3,505	
5	" 39,270 to 39,271 "	" 37,728 to 37,730	
	" 31,898 to 31,901 "	" 32,923 to 32,924	
	" 37,201 to 37,220 "	" 35,672 to 35,695	
	" 36,746 to 36,750 "	" 35,624 to 35,625	
	" 36,331 to 36,945 "	" 35,768 to 25,777	
	" 25,196 to 25,205 "	" 34,042 to 34,066	
	" 25,221 to 25,230 "	" 3,626 to 3,630	

**CALEDONIAN RAILWAY £25 SHARES.**  
10 Shares, Nos. 13,421 to 13,430 inclusive.

CALEDONIAN RAILWAY (CLYDESDALE JUNCTION) GUARANTEED SHARES.  
5 Shares, Nos. 412 to 416.      \*

6. That Alexander Hastie, Esq., M.P., John Anderson, Esq., John Houldsworth, Esq., Colonel William Macdonald, and John Hall Maxwell, Esq., who retire from office as directors at this meeting, be, and are accordingly, re-elected directors of this company.

7 That the determination of the shareholders on the subject of Sunday trains, passed on 31st August, 1847, be adhered to.

J. J. H. JOHNSTONE, Chairman.

The chairman having left the chair, it was resolved unanimously that the cordial thanks of the meeting be given to the chairman, for his conduct in the chair.

J. W. CODDINGTON, Secretary.

**RIDER'S RAILWAY BRIDGE.**—TO RAILWAY COMPANIES.—A PROSPECTUS of the above newly-invented IRON TRUSS RAILWAY BRIDGE will be FORWARDED, and CONTRACTS entered into, or LICENSES GRANTED for its ERECTION, on application to Mr. Moulton, Bradford, Wilts.

**TIMBER PRESERVING COMPANY.**—(PAYNE'S PATENTS FOR THE PRESERVATION OF TIMBER AGAINST DRY ROT, FIRE, RAVAGES OF WORMS, &c.)

The above company are ready to ENTER into ARRANGEMENTS for the PREPARATION OF TIMBER, at any of their under-mentioned stations - viz.:


Whitehall Wharf, Westminster	Barnstaple	Guildford
Fleetwood-on-Wyre	Leicester	Southampton

42

Frielswood-on-Wyre	Leicester	Stammington
Walsbeach	Lynn	Hartlepool
Gateshead	Staines	Darlington

And they will erect the necessary apparatus, wherever there is a considerable quantity of timber to be prepared.

Further particulars, with prices, may be obtained at the London Works, Whitehall Yard, Cannon-row, Westminster.

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MANUFACTURE every description of WROUGHT-IRON TUBES,  
for Locomotive and Marine Boilers, Gas, Steam, and other purposes.  
PATENT TUBE WORKS.

PATENT TUBE WORKS,  
DARLASTON, STAFFORDSHIRE.

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IMPROVED LIFTING	IMPROVED RATCHET JACK	HALEY'S PATENT LIFTING JACK.
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JACKS,  
MANUFACTURED BY

W. AND J. GALLOWAY,  
PATENT RIVET WORKS,

MANCHESTER.

\* The attention of parties who employ

respectfully requested to the supe-  
riority of those annexed, over those

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